

FINAL
**ENVIRONMENTAL ASSESSMENT
ADDRESSING CONSTRUCTION PROJECTS
AT
NIAGARA FALLS AIR RESERVE STATION, NEW YORK**



JULY 2011

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14. ABSTRACT The purpose of the Proposed Action is to construct and operate new facilities required to support the continuing mission at Niagara Falls ARS. This includes new construction to comply with the 2005 Base Closure and Realignment Commission requirement to establish an Air Reserve Component (ARC) association between the 914 A W and 107th Airlift Wing (107 AW), and new construction to complete the Five-Year Defense Plan (FYDP). Base Closure and Realignment Commission projects include construction of Joint AFRC/Air National Guard (ANG) Wing Headquarters, C-130 Flightline Operations Facility, and Joint Medical Facility. FYDP projects include a Flight Simulator Facility Visitor's Quarters Parking Area, Visitor's Quarters Phase III, and Visitor's Quarters Phase IV, Munitions Storage Igloo and Munitions Maintenance and Inspection (M&I) Facility, Explosive Ordnance Disposal (EOD) Range, and Fill-in Ramp South of Hangar 707. Under the No Action Alternative, the proposed facilities would not be constructed at Niagara Falls ARS. There would be no change from existing conditions at the installation. This alternative would not address Base Closure and Realignment Commission or AFRC mission requirements at Niagara Falls ARS. The EA evaluates the Proposed Action and the No Action Alternative. Resources that are considered in the impacts analysis include noise, land use, air quality, safety, water and soil resources, biological resources, socioeconomics and environmental justice, infrastructure, and hazardous materials and waste.					
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ABBREVIATIONS AND ACRONYMS

µg/L	micrograms per liter	EIS	Environmental Impact Statement
µg/m ³	micrograms per cubic meter	EISA	Energy Independence and Security Act
107 AW	107th Airlift Wing	EO	Executive Order
914 AW	914th Airlift Wing	EOD	Explosive Ordnance Disposal
ACM	asbestos-containing material	IRP	Environmental Restoration Program
AFI	Air Force Instruction	ESA	Endangered Species Act
AFRC	Air Force Reserve Command	ETL	Engineering Technical Letter
ANG	Air National Guard	FAA	Federal Aviation Administration
AQCR	air quality control region	FEMA	Federal Emergency Management Agency
AR	Army Regulation	FIRM	Flood Insurance Rate Map
ARC	Air Reserve Component	FONPA	Finding of No Practicable Alternative
ARS	Air Reserve Station	FONSI	Finding of No Significant Impact
AST	aboveground storage tank	FPPA	Farmland Protection Policy Act
AT/FP	anti-terrorism/force protection	ft ²	square feet
BASH	Bird/Wildlife Aircraft Strike Hazard	FY	fiscal year
bgs	below ground surface	FYDP	Five-Year Defense Plan
BMP	Best Management Practice	GHG	greenhouse gas
BRAC	Base Realignment and Closure	HAP	hazardous air pollutant
Btu	British thermal unit	HAZMART	hazardous materials pharmacy
CAA	Clean Air Act	HC/D 1.1	United Nations Organization Hazard Class/Division 1.1
CEQ	Council on Environmental Quality	HQ	Headquarters
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	HRC	hydrogen releasing compound
CES	Civil Engineering Squadron	HUD	U.S. Department of Housing and Urban Development
CFR	Code of Federal Regulations	IAP	International Airport
CO	carbon monoxide	ICM	interim corrective measures
CO ₂	carbon dioxide	ICRMP	Integrated Cultural Resources Management Plan
CWA	Clean Water Act	IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
dB	decibel	IRP	Installation Restoration Program
dBA	A-weighted decibels	JP-4	Jet Propellant-4
dBc	C-weighted decibels	kV	kilovolt
dBp	unweighted decibels	LBP	lead-based paint
DNL	Day-Night Average A-weighted Sound Level		
DOD	Department of Defense		
DRMO	Defense Reutilization and Marketing Office		
EA	Environmental Assessment		

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FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT
ADDRESSING CONSTRUCTION PROJECTS
AT NIAGARA FALLS AIR RESERVE STATION, NEW YORK

Pursuant to the Council on Environmental Quality's regulations for implementing procedural provisions of the National Environmental Policy Act (NEPA) (40 Code of Federal Regulations [CFR] 1500-1508), U.S Air Force (USAF) regulations in 32 CFR Part 989, and Department of Defense Directive 6050.1, the 914th Airlift Wing (914 AW) has prepared an Environmental Assessment (EA) to identify potential effects associated with implementing ten construction projects at Niagara Falls Air Reserve Station (ARS), New York. The EA is incorporated by reference into this Finding of No Significant Impact (FONSI).

INTRODUCTION

The 914 AW is an Air Force Reserve Command (AFRC) unit, and is the host unit at Niagara Falls ARS, New York. The major tenant at Niagara Falls ARS is the 107th Airlift Wing (107 AW) of the New York Air National Guard (NYANG). The 107 AW is an associate wing to the 914 AW.

The 914 AW proposes to construct and operate new facilities required to support the continuing mission at Niagara Falls ARS. This includes new construction to comply with the 2005 Base Closure and Realignment Commission requirement to establish an Air Reserve Component (ARC) association between the 914 AW and 107 AW, and new construction to complete the Five-Year Defense Plan (FYDP). Base Closure and Realignment Commission projects include construction of Joint AFRC/Air National Guard (ANG) Wing Headquarters, C-130 Flightline Operations Facility, and Joint Medical Facility. FYDP projects include a Flight Simulator Facility, Visitor's Quarters Phase III and Visitor's Quarters Phase IV, Visitor's Quarters Parking Area, Munitions Storage Igloo and Munitions Maintenance and Inspection (M&I) Facility, Explosive Ordnance Disposal (EOD) Range, and Fill-in Ramp South of Hangar 707.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to construct and operate new facilities required to support the continuing mission at Niagara Falls ARS. This includes new construction to comply with the 2005 BRAC requirement to establish an ARC association between the 914 AW and 107 AW, and new construction to implement components of the FYDP. Adherence to the FYDP would ensure that future installation mission and facility requirements are met.

The need for the Proposed Action is to ensure that the USAF maintains the capability to meet combatant commander requirements for surge and sustained operations and to meet current and future mission requirements and national security objectives associated with Niagara Falls ARS. This involves improving the efficiency and effectiveness of forces with the capability to expand by providing consolidated facilities to support the AFRC/ANG association, addressing facility deficiencies, and replacing substandard facilities.

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Proposed Action. The Proposed Action consists of 10 construction projects at Niagara Falls ARS. All AFRC/ANG projects (Projects 1 through 3) support the associated wing relationship between the 914 AW and the 107 AW mandated by the 2005 Base Closure and Realignment Commission. All new buildings constructed as part of the Proposed Action would be U.S. Green Building Council Leadership in Energy

and Environmental Design- (LEED) certified, and would comply with anti-terrorism/force protection (AT/FP) requirements. The following projects were evaluated in the EA:

Project 1. Joint AFRC/ANG Wing Headquarters Facility. This project is to construct a new 29,150-square-foot (ft²) Joint AFRC/ANG Wing Headquarters (HQ) facility. The facility would be a two-story building constructed in accordance with AT/FP standards. This project is necessary to comply with BRAC 2005 requirements and to collocate 914 AW and 107 AW commanders and staff.

Project 2. C-130 Flightline Operations Facility. This project involves construction of a 53,582-ft², two-story Joint AFRC/ANG C-130 Flightline Operations Facility and associated utilities and roads. The purpose of constructing the building is to house joint Operations Group (OG) organizations. This facility would satisfy the requirement for BRAC 2005. The proposed site for the C-130 Flightline Operations Facility is the parking area serving Buildings 906, 912, and 917. Two parking areas and associated roadways/pavements would be constructed, for a total square footage for pavements of 289,576 ft².

Project 3. Joint Medical Facility. The 25,353-ft² Joint Medical Facility is proposed to be constructed to the west of Building 320 along Kirkbridge Drive. Building 702 (3,519 ft²) would be demolished. The purpose of constructing a new facility would be to comply with BRAC 2005 and collocate facilities for the combined 914 AW and 107 AW Medical Groups. A 25,236-ft² parking area would be constructed.

Project 4. Visitor's Quarters Parking Area. A 30-space 90,000-ft² parking area is proposed to be constructed in FY 2016 adjacent to Buildings 500. The purpose of this facility is to provide parking for the current Visitor's Quarters, and would be constructed of pervious materials.

Project 5. Flight Simulator Facility. The Flight Simulator Facility would be an 11,312-ft² building for regional C-130 aircraft training. This facility is needed as the eastern region is lacking a centrally located Simulator Training Facility. The proposed site for the Flight Simulator Facility would be across from Building 320, adjacent to the proposed Joint Medical Facility.

Project 6. Visitor's Quarters, Phase III. Two Visitor's Quarters facilities are proposed to be constructed to supplement existing lodging facilities and support the associated wing mission. The Phase III facility would be a three-story, 50-room building. The proposed site for the facility would be to the south of Building 506 (Dining Hall) and west of Building 500 (current Visitor's Quarters).

Project 7. Visitor's Quarters, Phase IV. Phase IV would entail construction of a three-story, 47-room building in 2014. Building 403 (5,418 ft²) would be demolished under Phase IV, and would become the site of the proposed Visitor's Quarters. The proposed Visitor's Quarters facilities would be approximately 376,736 ft² upon completion of both Phase III and Phase IV.

Project 8. Munitions Storage Igloo and Munitions M&I Facility. An upgraded 8,718-ft² Munitions M&I Facility would be constructed in FY 2014 and the current Munitions M&I Facility (Building 820, 12,979 ft²) would be used to store flares and chaffs for the C-130s. The proposed site for the facility would be south of Building 620 along Otis Drive. Two facilities would exist at the site, including an earth-covered pre-fabricated Munitions Storage Igloo to store a net explosive weight of 450 pounds, and an earth-covered maintenance and inspection facility for inventory inspection. Two buildings would be constructed for the storage and inspection of EOD-related munitions assets. The Munitions Storage Igloo would likely require a 200-foot-long driveway for access. The current parking lot would be extended 50 feet to the west to satisfy the quantity-distance (QD) clear zones for the munitions structures. This would add 20,000 square feet of impervious surface.

Project 9. EOD Range. The EOD Range is proposed to be constructed to provide regional EOD capability for 2.5-pound explosive proficiency training and support the beddown of the EOD Flight. The 11,055-ft² range is proposed to be constructed to the south of Building 700 along Otis Drive. EOD used would be nonfragmenting and nonpenetrating. EOD would be detonated in a 20-foot-by-20-foot

containment area, surrounded by sound dampening techniques. Holding pads would be constructed to temporarily store ammunitions greater than 2.5 pounds total immediately prior to detonation.

Project 10. Fill-in Ramp South of Hangar 707. The aircraft parking ramp south of Hangar 707 is proposed to be extended to the south to accommodate future aircraft parking capability. Impervious surfaces would be increased by 213,284 ft², as concrete surfaces would be added to the ramp.

No Action Alternative. Under the No Action Alternative, there would be no change from existing conditions at the installation. Failure to construct the Joint AFRC/ANG Wing Headquarters Facility, C-130 Flightline Operations Facility, or Joint Medical Facility (Projects 1 through 3) would negatively impact the ability of the 914 AW and 107 AW to operate effectively and efficiently under the ARC associate wing concept. Failure to execute Projects 4 through 10 would impair the current 914 AW mission and restrict future development opportunities. Specifically, failure to construct the Flight Simulator Facility would prevent AFRC from providing essential C-130 aircrew training in the eastern region. Niagara Falls ARS would continue to provide insufficient lodging without construction of Phases III and IV, Visitors Quarters and the Visitor's Quarters Parking Area. Reservists would continue to be trained by the 914 Munitions Maintenance Group and maintain, inspect, and store munitions in degraded facilities. Failure to construct the EOD Range would prevent the 914 Civil Engineering Squadron (CES) from providing proficiency training for the EOD Flight. Failure to fill in the ramp south of Hangar 707 would negatively impact the consideration of Niagara Falls ARS as a candidate for new missions or realignments under future Strategic Basing Initiatives.

ALTERNATIVES CONSIDERED BUT NOT EVALUATED FURTHER

Two alternatives to the Proposed Action were considered but eliminated from further analysis. The first alternative eliminated from further analysis was for Project 3, Joint Medical Facility. Under this alternative, the proposed facility would be built on undeveloped land to the north of Building 921. This location would collocate the Joint Medical Facility with medical facilities in Buildings 2502 and 2503 to the southwest. However, this alternative was deemed infeasible as infrastructure does not exist at that location and there are potential wetlands issues. In addition, the alternative location is not appropriate for a Joint Wing facility as the site would not be conveniently located for both the 914 AW and 107 AW, but would be relegated to the western portion of the installation, which primarily supports 107 AW operations. Therefore, this alternative is not considered viable and is eliminated from further detailed analysis in the EA.

The second alternative considered but not evaluated further was for Project 9, EOD Range. Under this alternative, the USAF would purchase adjacent land to the northwest of the installation boundary to construct and operate an EOD Range. The EOD Range requires that the QD arc be more than 1,000 feet off the centerline of any runway and 80 feet off the centerline of utilities. Only one location exists on the installation to meet these criteria, so an off-installation location would be the only alternative. However, the USAF discourages the acquisition of additional property and the acquisition process could substantially delay project execution and escalate project cost. This alternative is not considered viable and is therefore eliminated from further detailed analysis in the EA.

SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED ACTION

Analyses performed in the EA addressed potential effects on noise, land use, air quality, safety, water and soil resources, biological resources, socioeconomics and environmental justice, infrastructure, and hazardous materials and waste. Short-term, minor, direct, adverse effects resulting from construction activities would affect air quality, safety, biological resources, and hazardous materials and wastes. Adverse effects associated with construction activities would be localized to the immediate area of work and would subside following the end of construction. Short-term, moderate, adverse impacts on the noise environment would be anticipated from the operation of the EOD Range; however, noise generation would last only for the duration of the detonation and would diminish as detonation activities moved

farther away from the receptor. Detonation would be restricted to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.).

No direct effects on the 100-year floodplain, wetlands, threatened and endangered species, or cultural resources would be expected. Excavation or trenching could be required; these activities could have a short-term negligible impact on the drawdown of the water table in the vicinity of the site of the Proposed Action should Best Management Practices (BMPs) and low-impact development (LID) techniques not be applied. Proper implementation of BMPs and adherence to the Stormwater Pollution Prevention Plan as part of the project design would prevent any adverse impacts from storm water runoff associated with construction of the Proposed Action.

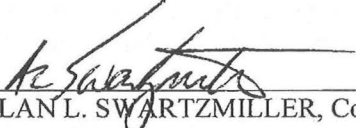
The analysis presented in the EA indicates that the construction or operation of the proposed facilities would have no significant direct, indirect, or cumulative effects on the quality of the natural or human environment.

PUBLIC REVIEW AND INTERAGENCY COORDINATION

The USAF initiated the Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) process for this Proposed Action on May 24 2011, in accordance with USAF policy. A 30-day public and agency review of the Draft EA and Draft FONSI occurred in accordance with NEPA and USAF regulations. A Notice of Availability for this action was published in *The Niagara Gazette* on May 24, 2011, the Draft EA and Draft FONSI were made available at the Niagara Falls Public Library, and copies of the documents were distributed to the addresses on the IICEP distribution list. Comments received through IICEP and the review process were considered and are included as appendices to the EA.

FINDING OF NO SIGNIFICANT IMPACT

I conclude that the environmental effects of the proposed ten construction projects at Niagara Falls ARS are not significant, that preparation of an Environmental Impact Statement is not necessary, and that a FONSI is appropriate. The preparation of the EA is in accordance with NEPA, Council on Environmental Quality regulations, and 32 CFR Part 989, as amended.


ALLAN L. SWARTZMILLER, Colonel, USAFR
Commander

9 AUG 11
Date

COVER SHEET

FINAL ENVIRONMENTAL ASSESSMENT ADDRESSING CONSTRUCTION PROJECTS AT NIAGARA FALLS AIR RESERVE STATION, NEW YORK

Responsible Agencies: U.S. Air Force (USAF), Air Force Reserve Command (AFRC), and 914th Airlift Wing (914 AW), Niagara Falls Air Reserve Station (ARS), New York.

Affected Location: Niagara Falls ARS, New York.

Proposed Action: Construct and operate new facilities at Niagara Falls ARS.

Report Designation: Final Environmental Assessment (EA).

Abstract: The purpose of the Proposed Action is to construct and operate new facilities required to support the continuing mission at Niagara Falls ARS. This includes new construction to comply with the 2005 Base Closure and Realignment Commission requirement to establish an Air Reserve Component (ARC) association between the 914 AW and 107th Airlift Wing (107 AW), and new construction to complete the Five-Year Defense Plan (FYDP). Base Closure and Realignment Commission projects include construction of Joint AFRC/Air National Guard (ANG) Wing Headquarters, C-130 Flightline Operations Facility, and Joint Medical Facility. FYDP projects include a Flight Simulator Facility, Visitor's Quarters Parking Area, Visitor's Quarters Phase III, and Visitor's Quarters Phase IV, Munitions Storage Igloo and Munitions Maintenance and Inspection (M&I) Facility, Explosive Ordnance Disposal (EOD) Range, and Fill-in Ramp South of Hangar 707.

Under the No Action Alternative, the proposed facilities would not be constructed at Niagara Falls ARS. There would be no change from existing conditions at the installation. This alternative would not address Base Closure and Realignment Commission or AFRC mission requirements at Niagara Falls ARS.

The EA evaluates the Proposed Action and the No Action Alternative. Resources that are considered in the impacts analysis include noise, land use, air quality, safety, water and soil resources, biological resources, socioeconomics and environmental justice, infrastructure, and hazardous materials and waste.

Written comments and inquiries regarding this document should be directed to 914 MSG/CEV, Niagara Falls ARS, 2405 Franklin Drive, Niagara Falls, New York 14304-5063.

PRIVACY ADVISORY

Your comments on this document are welcome. Letters or other written comments provided to the proponent concerning this document may be published in the EA. Comments will normally be addressed in the EA and made available to the public. Any personal information provided will be used only to identify your desire to make a statement during the public comment period or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the EA. However, only the names of the individuals making comments and specific comments will be disclosed; personal home addresses and phone numbers will not be published in the EA.

FINAL

**ENVIRONMENTAL ASSESSMENT
ADDRESSING CONSTRUCTION PROJECTS
AT
NIAGARA FALLS AIR RESERVE STATION,
NEW YORK**

**914TH AIRLIFT WING
MISSION SUPPORT GROUP/ENVIRONMENTAL
2405 Franklin Drive
Niagara Falls, New York 14304-5063**

JULY 2011

**FINAL
ENVIRONMENTAL ASSESSMENT
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1. Purpose of and Need for Proposed Action

1.1 Background

The 914th Airlift Wing (914 AW) is an Air Force Reserve Command (AFRC) unit and the host unit at Niagara Falls Air Reserve Station (ARS), New York. The 914 AW is assigned 12 C-130H aircraft that perform a diverse suite of roles, including airdrop of supplies, airlift support, aeromedical missions, and natural disaster relief missions. The major tenant at Niagara Falls ARS is the 107th Airlift Wing (107 AW) of the New York Air National Guard (NYANG). The 2005 Base Realignment and Closure Act (BRAC) final approved recommendations included the formation of an AFRC/Air National Guard (ANG) associate wing for C-130 aircraft that would support flight operations and be compatible with joint use of the ARS as a civilian airport (BRAC 2005).

As part of the decisionmaking process, the 914 AW is conducting an environmental analysis to determine the potential environmental impacts of proposed construction projects at Niagara Falls ARS. This Environmental Assessment (EA) analyzes the Proposed Action and the No Action Alternative. The analyses presented in the EA indicate that implementation of the Proposed Action would not result in significant environmental impacts, and a Finding of No Significant Impact (FONSI) has been prepared. A FONSI briefly presents reasons why a Proposed Action would not have a significant effect on the human environment and why an Environmental Impact Statement (EIS) is unnecessary. If significant environmental issues are identified that cannot be mitigated to insignificant levels, an EIS would be prepared, or the Proposed Action would be abandoned and no action would be taken.

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to construct and operate new facilities required to support the continuing mission at Niagara Falls ARS. This includes new construction to comply with the 2005 BRAC requirement to establish an Air Reserve Component (ARC) association between the 914 AW and 107 AW, and new construction to implement components of the Five-Year Defense Plan (FYDP). Adherence to the FYDP would ensure that future installation mission and facility requirements are met (Niagara Falls ARS 2009a).

The need for the Proposed Action is to ensure that the U.S. Air Force (USAF) maintains the capability to meet combatant commander requirements for surge and sustained operations and to meet current and future mission requirements and national security objectives associated with Niagara Falls ARS. This involves improving the efficiency and effectiveness of forces with the capability to expand by providing consolidated facilities to support the AFRC/ANG association, addressing facility deficiencies, and replacing substandard facilities.

1.3 Location of the Proposed Action

As shown on **Figure 1-1**, Niagara Falls ARS is in Niagara County in western New York, approximately 6 miles east of the City of Niagara Falls and 20 miles north of the City of Buffalo. Adjacent communities include the towns of Niagara, Lewiston, and Wheatfield; and the City of Niagara Falls. Niagara Falls International Airport (IAP) is directly south of and contiguous to the installation. As shown on **Figure 1-2**, the boundary between the airport and the installation generally coincides with the channel of Cayuga Creek, which flows from east to west, south of the installation flightline apron. The installation occupies 985 acres of land north of Niagara Falls IAP. Vehicular access to Niagara Falls ARS is provided through the Main Gate, off Lockport Road.

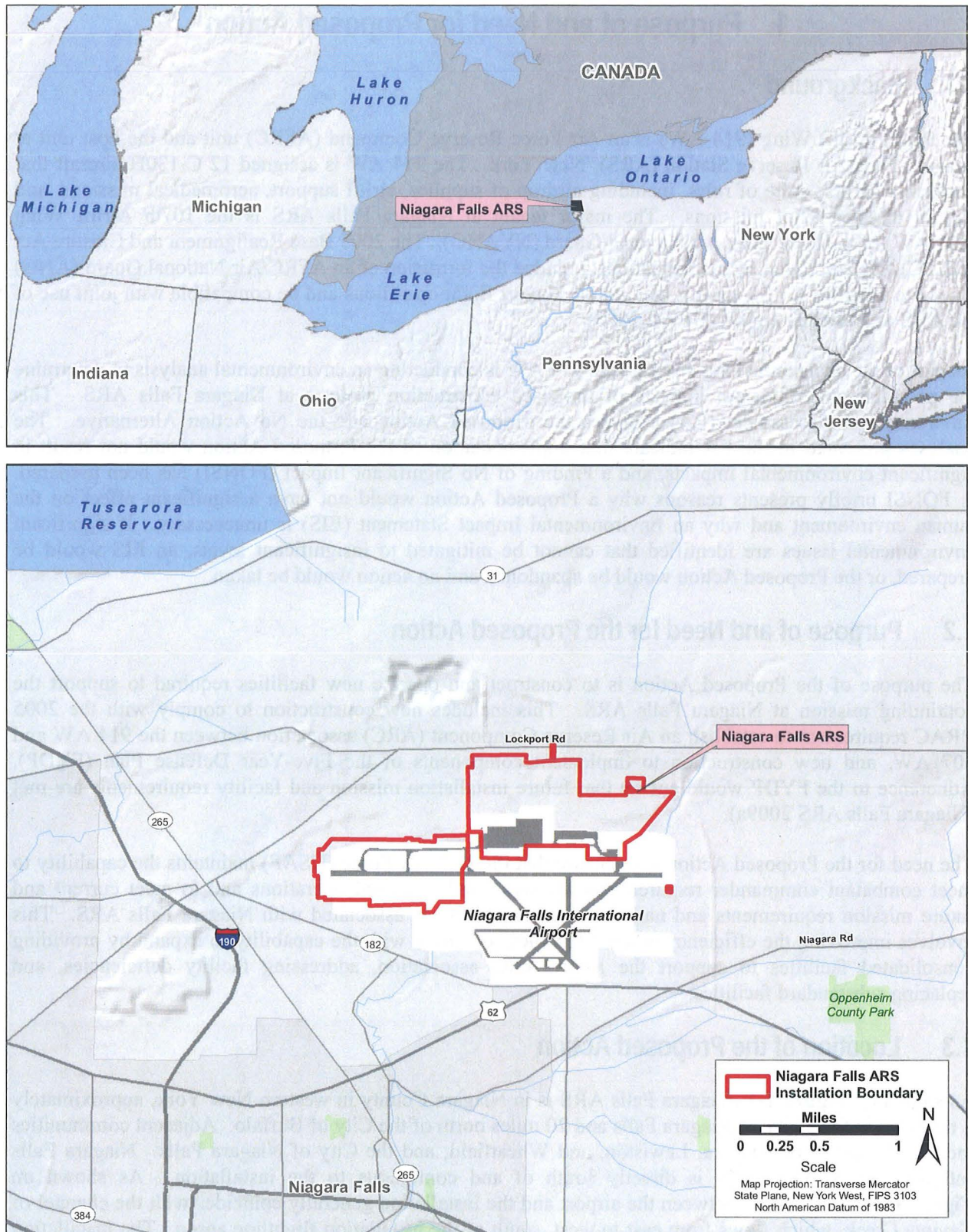
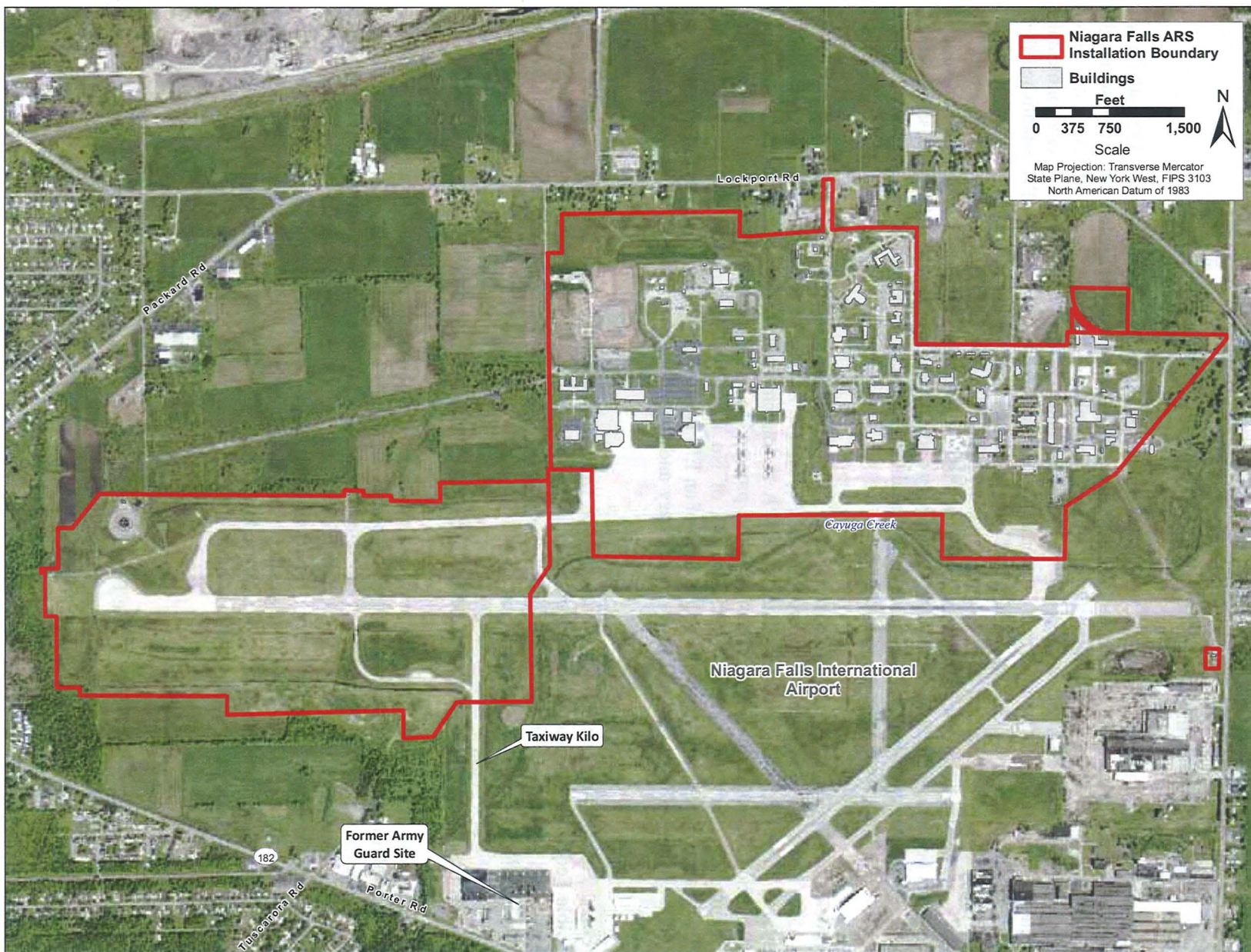


Figure 1-1. Niagara Falls ARS Vicinity Map



Sources of Aerial Photography: ESRI Resource Center, 2007. Installation Boundary and Buildings: Niagara Falls ARS, 2008

Figure 1-2. Niagara Falls ARS Installation Map

1.4 Summary of Key Environmental Compliance Requirements

1.4.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] Section 4321–4347) is a Federal statute requiring the identification and analysis of potential environmental impacts associated with proposed Federal actions before those actions are taken. The intent of NEPA is to help decisionmakers make well-informed decisions based on an understanding of the potential environmental consequences and take actions to protect, restore, or enhance the environment. NEPA established the Council on Environmental Quality (CEQ) that was charged with the development of implementing regulations and ensuring Federal agency compliance with NEPA. The CEQ regulations mandate that all Federal agencies use a prescribed, structured approach to environmental impact analysis. This approach also requires Federal agencies to use an interdisciplinary and systematic approach in their decisionmaking process. This process evaluates potential environmental consequences associated with a Proposed Action and considers alternative courses of action.

The process for implementing NEPA is codified in Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The CEQ was established under NEPA to implement and oversee Federal policy in this process. The CEQ regulations specify that an EA be prepared to briefly provide evidence and analysis for determining whether to prepare a FONSI/Finding of No Practicable Alternative (FONPA), where a FONPA is appropriate, or whether the preparation of an EIS is necessary. The EA can aid in an agency's compliance with NEPA when an EIS is unnecessary and facilitate preparation of an EIS when one is required.

Air Force Policy Directive 32-70, *Environmental Quality*, states that the USAF will comply with applicable Federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is its *Environmental Impact Analysis Process* that is detailed in 32 CFR Part 989, as amended.

1.4.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decisionmaking process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA must be integrated “with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively.”

1.4.3 Scope of the Analysis

This EA examines potential effects of the Proposed Action and No Action Alternative on nine resource areas: noise, land use, air quality, safety, water and soil resources, biological resources, socioeconomics and environmental justice, infrastructure, and hazardous materials and waste. These resource areas were identified as being potentially affected by the Proposed Action, and include applicable critical elements of the human environment whose review is mandated by Executive Order (EO), regulation, or policy. **Appendix B** contains examples of relevant laws, regulations, and other requirements that are often considered part of the analysis.

The collective analysis of the various projects associated with this initiative in a single EA will eliminate segmentation, streamline the NEPA review process, facilitate coordination of land use planning, and expedite project execution by using early planning. In addition, the EA will provide a more comprehensive evaluation of potential cumulative environmental impacts; assist in maintaining a baseline for future analysis; encourage agency coordination; reduce review times for the installation, reviewing agencies, and major commands; and meet the USAF Environmental Impact Analysis Process goals.

1.5 Public Involvement

The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. Air Force Instruction (AFI) 32-7060 requires AFRC to implement a process known as Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), which is used for the purpose of agency coordination and implements scoping requirements. Through the IICEP process, the 914 AW will notify relevant Federal, state, and local agencies; and the surrounding communities of the action proposed and provided them sufficient time to make known their environmental concerns specific to the action.

The public involvement process will also provide the AFRC the opportunity to cooperate with and consider state and local views in implementing this Federal proposal. The 914 AW will coordinate with agencies such as U.S. Environmental Protection Agency (USEPA); U.S. Fish and Wildlife Service (USFWS); State Historic Preservation Office (SHPO); and other Federal, state, and local agencies.

A Notice of Availability (NOA) for the Draft EA and Draft FONSI was published in the *Niagara Gazette* on 24 May 2011 to solicit comments on the Proposed Action and involve the local community in the decisionmaking process. Comments provided to the 914 AW are included in **Appendix C**.

1.6 Organization of this Document

This EA is organized into seven sections. **Section 1** provides the purpose of and need for the Proposed Action. **Section 2** contains a description of the Proposed Action and the No Action Alternative. **Section 3** contains a general description of the biophysical resources and baseline conditions that could potentially be affected by the Proposed Action and the No Action Alternative. **Section 4** presents an analysis of the potential environmental consequences of implementing the Proposed Action and the No Action Alternative. **Section 5** includes an analysis of the potential cumulative impacts at Niagara Falls ARS. **Section 6** lists the preparers of the document and **Section 7** lists the references used in the preparation of the document.

Appendix A contains photographs of the proposed project sites. **Appendix B** contains applicable laws, regulations, policies, and planning criteria potentially relevant to NEPA analysis. **Appendix C** includes IICEP materials, including a copy of the draft letter that will be mailed to the agencies for the EA and the distribution list. A copy of the Draft EA and Draft FONSI was sent as an attachment to each person on the list and made available at the Niagara Falls Public Library to enhance the opportunity for public involvement. **Appendix C** also includes agency responses. **Appendix D** includes the noise analysis for one of the proposed construction projects (Explosive Ordnance Disposal [EOD] Range, Project 9). **Appendix E** includes the air emissions calculations for the Proposed Action.

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2. Description of Proposed Action and Alternatives

2.1 Introduction

This section describes the Proposed Action and the alternatives considered. As discussed in **Section 1.4.1**, the NEPA process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. Reasonable alternatives must satisfy the purpose of and need for a proposed action, which are defined in **Section 1.2**. CEQ regulations specify the inclusion of a No Action Alternative against which potential effects can be compared. While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, it is analyzed in detail in accordance with CEQ regulations.

2.2 Detailed Description of the Proposed Action

The Proposed Action consists of 10 construction projects at Niagara Falls ARS (Niagara Falls ARS 2009b). All AFRC/ANG projects (Projects 1 through 3) support the associated wing relationship between the 914 AW and the 107 AW mandated by the 2005 Base Closure and Realignment Commission. All new buildings constructed as part of the Proposed Action would be U.S. Green Building Council Leadership in Energy and Environmental Design- (LEED) certified, and would comply with anti-terrorism/force protection (AT/FP) requirements. The projects include the following:

Project 1. Joint AFRC/ANG Wing Headquarters Facility. This project is to construct a new 29,150-square-foot (ft²) Joint AFRC/ANG Wing Headquarters (HQ) facility in fiscal year (FY) 2016. The site proposed for the Joint HQ building is currently a baseball field to the south of Building 798 along Ent Avenue. Construction of the Joint AFRC/ANG Wing HQ Facility would entail a land use change from recreational to administrative. Building 901 currently houses 107 AW Headquarters, and would be used by other on-installation AFRC or ANG entities upon implementation of the Proposed Action. The facility would be a two-story building constructed in accordance with AT/FP standards. This project is necessary to comply with BRAC 2005 requirements and to collocate 914 AW and 107 AW commanders and staff.

Project 2. C-130 Flightline Operations Facility. This project involves construction of a 53,582-ft², two-story Joint AFRC/ANG C-130 Flightline Operations Facility and associated utilities and roads. The facility is proposed to be constructed in the paved area between Buildings 915 and 912. The purpose of constructing the building is to house joint Operations Group (OG) organizations. This facility would satisfy the requirement for BRAC 2005. Construction would be conducted in two phases, with Phase 1 occurring in 2011 and Phase 2 occurring in 2012. Buildings 906 and 912 would be demolished with a total demolition area of 28,036 ft², and Building 807, which currently houses the 914 AW OG, would be reused for future 914 AW requirements. The proposed site for the C-130 Flightline Operations Facility is currently the parking area serving Buildings 906, 912, and 917. The C-130 Flightline Operations Facility is proposed to be constructed over an unregulated drainage ditch (Mathews 2011). The ditch is proposed to be relocated to retain drainage functionality within the site. It is estimated that 200 feet of utility lines would be installed. Two parking areas with associated roadways/pavements would be constructed, for a total square footage of 289,576 ft² of pavements.

Project 3. Joint Medical Facility. The 25,353-ft² Joint Medical Facility is proposed to be constructed in FY 2013. The Joint Medical Facility is proposed to be sited to the west of Building 320 along Kirkbridge Drive. Building 702 (3,519 ft²) would be demolished. Buildings 801, 802, and 936 would be reused by the 914th AW or another Federal agency. The purpose of constructing a new facility would be to comply

with BRAC 2005 and collocate facilities for the combined 914 AW and 107 AW Medical Groups. A 25,236-ft² parking area would be constructed.

Project 4. Visitor's Quarters Parking Lot. A 30-space, 90,000-ft² parking area is proposed to be constructed in FY 2016 adjacent to Buildings 500. The purpose of this facility is to provide parking for the current Visitor's Quarters, and would be constructed of pervious materials.

Project 5. Flight Simulator Facility. The Flight Simulator Facility would be an 11,312-ft² building for regional C-130 aircraft training. This facility would be constructed in 2013 and is needed as the eastern region is lacking a centrally located Simulator Training Facility. The proposed site for the Flight Simulator Facility would be across from Building 320, adjacent to the proposed Joint Medical Facility.

Project 6. Visitor's Quarters, Phase III. A Visitor's Quarters building is proposed to be constructed in 2014 to supplement existing lodging facilities. The facility would be a three-story, 50-room building and would support the associated wing mission. The proposed site for the facility would be to the south of Building 506 (Dining Hall) and west of Building 500 (current Visitor's Quarters). The proposed Visitor's Quarters facilities would be approximately 376,736 ft² upon completion of both Phase III and Phase IV. Parking area for 40 to 50 vehicles (approximately 50,000 ft²) would be constructed.

Project 7. Visitor's Quarters, Phase IV. Phase IV would entail construction of a three-story, 47-room facility in 2014 to supplement existing lodging facilities. Building 403 (5,418 ft²) would be demolished under Phase IV, and would become the site of the proposed Visitor's Quarters. Upon completion of construction, the facilities would be approximately 376,736 ft².

Project 8. Munitions Storage Igloo and Munitions Maintenance and Inspection (M&I) Facility. A new 8,718-ft² Munitions M&I Facility would be constructed in FY 2012/2013 to support the newly gained EOD mission. The current Munitions Storage Facility (Building 820, 12,979 ft²) would remain in its current capacity to support all non-EOD munitions operations for Niagara Falls ARS. The earth-covered igloo would be necessary to meet the storage requirements of United Nations Organization Hazard Class/Division 1.1 (HC/D 1.1) munitions, which have a mass detonation hazard, that support the new EOD mission.

The proposed site for the facilities would be south of Building 620 along Otis Drive. The quantity-distance (QD) arcs for the M&I facility and Munitions Storage Igloo would extend off the installation towards the proposed Runway 24 extension (the runway extension is discussed in cumulative impacts, **Section 5**). The current parking lot would be extended 50 feet to the west to satisfy the QD clear zones for the munitions structures. This would add 20,000 ft² of impervious surface. Two facilities are currently projected to exist on the site; however, future additional munitions storage igloos could be sited for storage requirements. The earth-covered M&I facility would have an explosives site plan allowing a net explosives weight (N.E.W.) of 150 pounds of HC/D 1.1 for inventory and inspection purposes. The earth-covered Munitions Storage Igloo would have an approved explosives site plan allowing a N.E.W. of 450 pounds of HC/D 1.1 for munitions storage purposes. Two buildings would be constructed for the storage and inspection of EOD-related munitions assets. The Munitions Facilities would likely require a 200-foot-long driveway for access, a loading dock, and a turnaround to facilitate a 40-foot tractor trailer. The utilities proposed to be installed would run along each side of Otis Drive connecting to the Munitions Storage Igloo and M&I Facility, resulting in a maximum length of approximately 200 feet. The utilities would enter the building underground at a distance of no less than 50 feet away from the structures.

Project 9. EOD Range. The EOD Range is proposed to be constructed to provide regional EOD capability for 2.5-pound explosive proficiency training and support the beddown of the EOD Flight. The 11,055-ft² range is proposed to be constructed in FY 2011 to the south of Building 700 along Otis Drive.

EOD would be using nonfragmenting and nonpenetrating. EOD would be detonated in a 20-foot-by-20-foot containment area. Six-foot-thick walls and the equivalent to earth no less than two sandbags in thickness would surround the containment area to mitigate for noise effects. Holding pads would be constructed to temporarily store munitions greater than 2.5 pounds total immediately prior to detonation. The QD arc is 300 feet for 2.5 pound (1.1 kilogram) munitions. Approximately 10 to 20 personnel would be employed to operate the training facility, resulting in a slight increase in installation population.

Project 10. Fill-in Ramp South of Hangar 707. The aircraft parking ramp is proposed to be extended to the south to accommodate future aircraft parking capability. Impervious surfaces would be increased by 213,284 ft² as concrete surfaces would be added to the ramp. Storm water and erosion control would be implemented.

Figures 2-1 and 2-2 show the project locations and potential environmental constraints, respectively.

Table 2-1 shows the total project area (including demolition and construction activities, and utilities placement) and the increase in impervious surfaces for the projects associated with the Proposed Action. All landscaping would be completed in accordance with Niagara Falls ARS standards, and construction would comply with all applicable fire and safety codes. The Proposed Action would meet all applicable DOD construction requirements.

Table 2-1. Area and Impervious Surfaces of Projects Associated with the Proposed Action

Project	Project Area (ft ²)	Change in Impervious Surfaces (ft ²)
Project 1 - Joint AFRC/ANG Wing HQ Facility	29,150	+ 29,150
Project 2 - C-130 Flightline Operations Facility	371,194	+ 315,122
Project 3 - Joint Medical Facility	54,108	+ 47,070
Project 4 - Visitor's Quarters Parking Lot	90,000	9,000 ¹
Project 5 - Flight Simulator Facility	11,312	+ 11,312
Project 6 - Visitor's Quarters, Phase III	432,154	+ 421,318 ²
Project 7 - Visitor's Quarters, Phase IV		
Project 8 - Munitions Storage Igloo and M&I Facility	29,918	+ 29,318
Project 9 - EOD Range	11,055	+ 1,302
Project 10 - Fill-in Ramp South of Hangar 707	213,284	+ 213,284
Total	1,242,175	+ 1,076,876

Key:

¹ = A 10 percent increase in storm water runoff has been assumed for the pervious parking area.

² = Project 7a, (Visitor's Quarters, Phase IV, East-West Orientation), would result in an additional project area of 16,800 ft² from the demolition of a parking area. Change in impervious surfaces would remain 421,318 ft².

Note:

A 3-foot excavation area has been assumed for utility work. Roads were assumed to be 12 feet per lane with 2 lanes; driveways were assumed to be 12 feet wide.

2.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and construction activities described herein would not be conducted. Failure to construct the Joint AFRC/ANG Wing Headquarters Facility, C-130 Flightline Operations Facility, or Joint Medical Facility (Projects 1 through 3) would negatively impact the ability of the 914 AW and 107 AW to operate effectively and efficiently under the ARC associate wing concept. Failure to execute Projects 5 through 10 would impair the current 914 AW mission and restrict future development opportunities. Specifically, failure to construct the Flight Simulator Facility would prevent AFRC from providing essential C-130 aircrew training in the eastern region. Niagara Falls ARS would continue to provide insufficient lodging without construction of Phases III and IV, Visitors Quarters. Reservists would continue to be trained by the 914 Munitions Maintenance Group and maintain, inspect, and store munitions in degraded facilities. Failure to construct the EOD Range would prevent the 914 Civil Engineering Squadron (CES) from providing proficiency training for the EOD Flight. Failure to fill in the ramp south of Hangar 707 would negatively impact the consideration of Niagara Falls ARS as a candidate for new missions or realignments under future Strategic Basing Initiatives.

2.4 Alternatives

As part of the NEPA process, reasonable alternatives to the Proposed Action must be considered. The development of reasonable alternatives involved discussions with Niagara Falls ARS installation and tenant personnel to evaluate the purpose of and need for the Proposed Action, alternative courses of action, designs, locations, and management practices for achieving the purpose and need. Consistent with the intent of NEPA, this screening process focused on identifying a range of reasonable project-specific alternatives and, from that, developing a proposed action that could be implemented in the foreseeable future. Based on technical, operational, and environmental selection standards, these alternatives were deemed infeasible and eliminated from further detailed analysis. Any alternatives considered for each project are discussed below.

Project 1. Joint AFRC/ANG Wing Headquarters Facility. An alternative location for the Wing Headquarters would be to build an addition to Building 800 and consolidate the Wing HQs. However, the 107 AW does not want to do this as it would mean losing their separate identity as a National Guard unit. Also, for the 107th to maintain their status as an enclave, they cannot relinquish any more facilities. In addition, adding square footage to Building 800 would entail removal of parking spaces and available land is limited in that part of the installation. This alternative was not deemed feasible and will not be carried forward for detailed analysis in the EA.

Another potential alternative is to build an addition to Building 901 and consolidate the Wing HQs. However, this is not a good location for a Wing HQs function as it is adjacent to the installation boundary, and would not comply with AT/FP standards. This alternative was not deemed feasible and will not be carried forward for detailed analysis in the EA. Therefore, other than the No Action Alternative, no alternative to Project 1 (Joint AFRC/ANG Wing Headquarters Facility) was identified.

Project 2. C-130 Flightline Operations Facility. Due to the technical nature of the activity (i.e., size of plane, width of door, and location of ramp in relation to the hanger), other than the No Action Alternative, no alternative to the Proposed Action was identified. This facility is required to be on the flightline as it includes functions for life support, weather, airfield management, and the two flying squadrons. Because of the lack of space along the flightline, no other alternative location along the flightline is available.

Project 3. Joint Medical Facility. In addition to the proposed location for the Joint Medical Facility associated with the Proposed Action, siting was also considered adjacent to Buildings 2503 and 2502, as

medical facilities exist in that area. However, this area was not considered to be feasible as the size of the facility and associated parking area would impact the scope of this project for several reasons. First, there are no roads, parking, or utilities (electric, gas, sanitary sewers, and water) in this area. Second, there are wetlands and a regulated drainage ditch in the area that would have to be relocated. In addition, the alternative location is not appropriate for a Joint Wing facility as the site would not be conveniently located for both the 914 AW and 107 AW, but would be relegated to the western portion of the installation, which primarily supports 107 AW operations. Therefore, this alternative is not considered viable and is eliminated from further detailed analysis in the EA.

Project 4. Visitor's Quarters Parking Area. The Visitor's Quarters Parking Area is proposed to occur between adjacent to Building 500 (Visitor's Quarters). This is the only unoccupied area close to the Visitor's Quarters, due to a lack of available land. The Visitor's Quarters can accommodate 137 guests, but only has parking for 60 to 70 vehicles. The space surrounding the Visitor's Quarters consists of buildings or is allocated for future construction. Therefore, other than the No Action Alternative, no alternative to the Proposed Action was identified.

Project 5. Flight Simulator Facility. The majority of personnel using this facility would be temporary duty students, so siting this facility close to the new Community Activity Center and the Visitor's Quarters would be most functional and economical. There is no other location in this area of the installation that could accommodate a facility of this size. Therefore, other than the No Action Alternative, no alternative to the Proposed Action was identified.

Project 6. Visitor's Quarters, Phase III. No alternative locations for Project 6 (Visitor's Quarters, Phase III) were considered because the intent is to collocate this facility with the other Visitor's Quarters, in a central area, close to the Community Activity Center. Therefore, other than the No Action Alternative, no alternative to the Proposed Action was identified.

Project 7. Visitor's Quarters, Phase IV. Project 7a (Visitor's Quarters, Phase IV, East-West Orientation) is an alternative to Project 7. Project 7a would be sited south of Building 403 and oriented in an east/west direction. The intent is to collocate this facility with the other Visitor's Quarters, in a central area, close to the Community Activity Center. Under this alternative, Building 403 and part of the parking area currently occupying the space would be demolished. The parking area to be demolished is approximately 5,600 ft². The total project area for parking area demolition is 16,800 ft². This alternative is considered feasible and will be carried forward for detailed analysis.

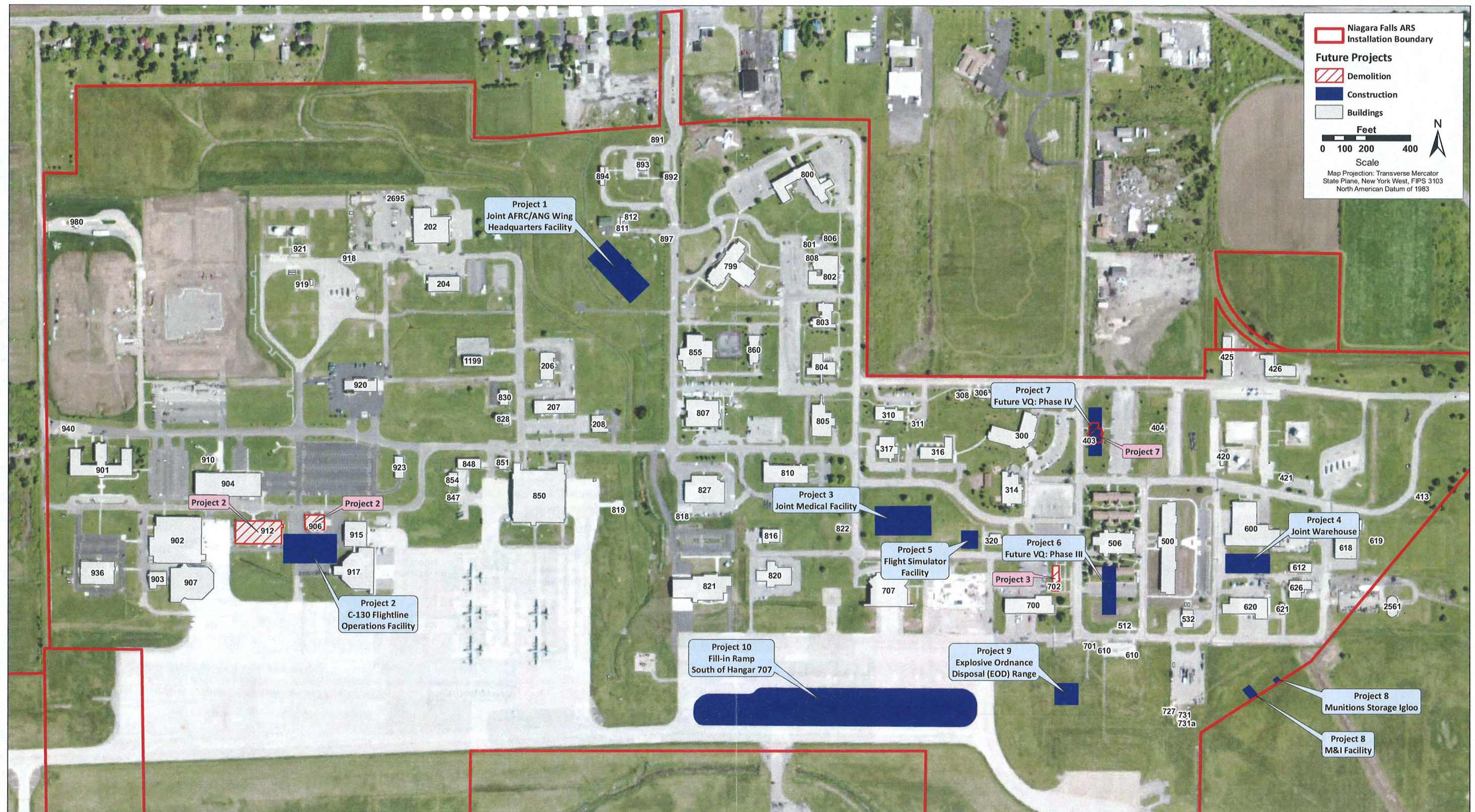
Project 8. Munitions Storage Igloo and Munitions M&I Facility. This project is proposed to be sited within the EOD Range and must also comply with the 300-foot QD arc. Other than the No Action Alternative, no alternative to the Proposed Action was identified.

Project 9. EOD Range. Siting for the EOD Range was determined by reviewing available space and the required 300-foot QD arc associated with the EOD Range. Another possible site for the EOD Range would require purchasing or leasing land off-installation. Under this alternative, the USAF would purchase adjacent land to the northwest of the installation boundary to construct and operate an EOD Range. The EOD Range requires that the QD arc be more than 1,000 feet off the centerline of any runway and 80 feet off of the centerline of utilities. Only one location exists on the installation to meet these criteria, so an off-installation location would be the only alternative. However, the USAF discourages the acquisition of additional property and the acquisition process could substantially delay project execution and escalate project cost. This alternative is not considered viable and is therefore eliminated from further detailed analysis in the EA. No alternative, other than the No Action Alternative, is feasible for this project.

Project 10. Fill-in Ramp South of Hangar 707. An alternative to fill-in the ramp south of Hangar 707 would be to buy or lease space at the former Army Guard facility south of Taxiway Kilo in the southwestern corner of the airport near Porter Road (see **Figure 1-2**). This land is being vacated by the Army Guard who is moving into Buildings 2502 and 2503. Once the Army vacates the space, it will be transferred to the Town of Niagara, rendering the option of leasing or buying the space viable. Under this alternative, Niagara Falls ARS would lease or buy space for additional aircraft parking. This alternative would result in an insufficient span of control for the command and control function. The leased facilities would have great limitations in their ability to meet the DOD force protection requirements, resulting in high additional costs or noncompliance with force protection requirements. This alternative is not considered viable and is eliminated from further detailed analysis in the EA.

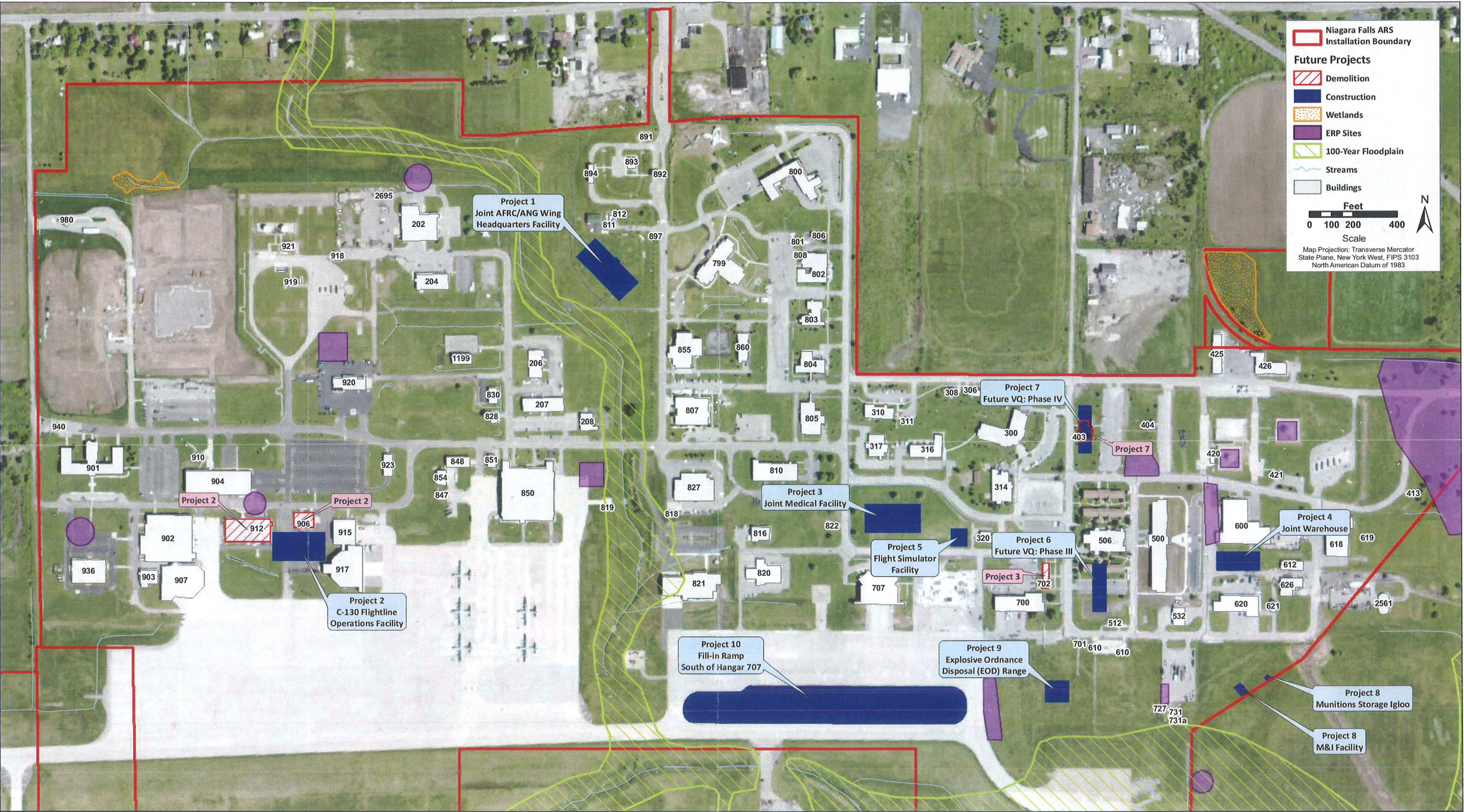
2.4.1 Preferred Alternative

Implementation of the Proposed Action, as identified in **Section 2.2**, is the Preferred Alternative.



Sources of Aerial Photography: ESRI Resource Center, 2007. Installation Boundary and Buildings: Niagara Falls ARS, 2008

Figure 2-1. Location of Projects Associated with the Proposal Action



Sources of Aerial Photography: ESRI Resource Center, 2007. Installation Boundary and Buildings: Niagara Falls ARS, 2008

Figure 2-2. Environmental Constraints and Projects Associated with the Proposed Action

3. Affected Environment

This section presents the characteristics of the affected environment and an analysis of the potential direct and indirect effects each alternative would have on the affected environment. Cumulative and other effects are discussed in **Section 5**. All potentially relevant resource areas were initially considered in this EA. Some were eliminated from detailed examination because of their inapplicability to this proposal.

In compliance with NEPA, CEQ guidelines, and 32 CFR Part 989, the following evaluation of environmental impacts focuses on those resources and conditions potentially subject to effects and on potentially significant environmental issues deserving of study, and deemphasizes insignificant issues.

Some environmental resources and conditions that are often analyzed in an EA have been omitted from detailed analysis. The following provides the basis for such exclusions.

Geological Resources

The Proposed Action and Alternative Site B will require ground-disturbing activities associated with construction activities on Niagara Falls ARS property. Therefore, impacts on soil resources could be an issue, but no other geological resources impacts would be anticipated. The discussion of soils is included with water resources (see **Section 3.5**). Accordingly, a detailed examination of geological resources in this EA is not necessary.

Cultural Resources

Cultural resources include archaeological resources, historic architectural or engineering resources, and other traditional resources. Sections 106 and 110 of the National Historic Preservation Act protect cultural resources that are listed or eligible for listing in the National Register of Historic Places. As required by the DOD, Niagara Falls ARS has an Integrated Cultural Resources Management Plan (ICRMP) that outlines compliance with the applicable laws and other legal requirements (Niagara Falls ARS 2007).

An installationwide Stage 1 archaeological survey was conducted in 1998. After reviewing the survey report, on 12 May 2000 the New York SHPO concluded that there are no archaeological sites at Niagara Falls ARS. The SHPO also stated that future projects at Niagara Falls ARS will not require any further archaeological investigations (NYSHPO 2000). Niagara Falls ARS's standard operating procedures for unanticipated discoveries provided in the ICRMP would be followed should any unanticipated cultural resources, including archaeological sites, be encountered during construction activities (Niagara Falls ARS 2007).

3.1 Noise

3.1.1 Definition of the Resource

Sound is defined as a particular auditory effect produced by a given source, for example the sound of rain on a rooftop. Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. It can be readily identifiable or generally nondescript. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source

and receptor, receptor sensitivity, and time of day. How an individual responds to the sound source will determine if the sound is viewed as music to one's ears or as annoying noise. Affected receptors are specific (e.g., schools, churches, or hospitals) or broad (e.g., nature preserves or designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists.

Noise Metrics and Regulations

Noise Metrics. Two types of measurements are normally considered when determining noise impacts on the surrounding population: the day-night average A-weighted sound level (DNL) and peak sound levels. DNL represents daily operations averaged over a prescribed time period with a 10-decibel (dB) penalty assigned to noise events occurring between the hours of 10 p.m. and 7 a.m. DNL is the primary descriptor for military noise, since it represents a daily average. Single event noise levels are also used to assess the risk of noise complaints. A peak sound level is a single noise event; it is the maximum noise level that is estimated to be heard.

Sound levels can be A-weighted (dBA), C-weighted (dBC), or unweighted (dBP). An A-weighted measurement depresses the noise levels in low- and high-frequency bands to approximate the range of human hearing. This noise measurement provides a good indication of the impact produced by aircraft activities. The C-weighting measurement includes a lower frequency range of sounds than the A-scale, and was used to evaluate the DNL noise levels from the proposed EOD range operations. The low-frequency components of sound from high-amplitude impulsive noise cause buildings and windows to shake and rattle (vibration). Peak sound pressure level (PK15[met]), a single event metric, was used to evaluate the peak sound level from proposed EOD range operations. PK15(met) accounts for statistical variation in received single-event peak noise levels due to weather. It is the calculated peak noise level, without frequency weighting, expected to be exceeded by 15 percent of all events that might occur. If there are multiple weapon types fired from one location, or multiple firing locations, the single-event level used should be the loudest noise level that occurs at each receiver location. PK15(met) does not take the duration or the number of events into consideration. PK15(met) is measured in dBP.

DNL is the metric recognized by the U.S. government for measuring noise and its impacts on humans. According to the USAF, Federal Aviation Administration (FAA), and the U.S. Department of Housing and Urban Development (HUD) criteria, residential units and other noise-sensitive land uses are "clearly unacceptable" in areas where the noise exposure exceeds a DNL of 75 dBA, "normally unacceptable" in regions exposed to noise between 65 dBA and 75 dBA, and "normally acceptable" in areas exposed to noise of 65 dBA or under. The Federal Interagency Committee on Noise developed land use compatibility guidelines for noise in terms of DNL sound levels (FICON 1992). For outdoor activities, the USEPA recommends a DNL sound level of 55 dBA as the sound level below which there is no reason to suspect that the general population would be at risk from any of the effects of noise (USEPA 1974).

Common Sounds. Table 3-1 compares common sounds and shows how they rank in terms of the effects of hearing. As shown, a whisper is normally 30 dBA and considered to be very quiet while an air conditioning unit 20 feet away is considered an intrusive noise at 60 dBA. Noise levels can become annoying at 80 dBA and very annoying at 90 dBA. To the human ear, each 10 dBA increase seems twice as loud (USEPA 1981).

Table 3-1. Sound Levels and Human Response

Noise Level (dBA)	Common Sounds	Effect
10	Just audible	Negligible*
30	Soft whisper (15 feet)	Very quiet
50	Light auto traffic (100 feet)	Quiet
60	Air conditioning unit (20 feet)	Intrusive
70	Noisy restaurant or freeway traffic	Telephone use difficult
80	Alarm clock (2 feet)	Annoying
90	Heavy truck (50 feet) or city traffic	Very annoying; Hearing damage (8 hours)
100	Garbage truck	Very annoying*
110	Pile drivers	Strained vocal effort*
120	Jet takeoff (200 feet) or auto horn (3 feet)	Maximum vocal effort
140	Carrier deck jet operation	Painfully loud

Source: FICON 1992

Note: *HDR extrapolation

Federal Regulations. The Federal government has established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. Under the Noise Control Act of 1972, the Occupational Safety and Health Administration (OSHA) established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 dBA over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hour period. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits (29 CFR Part 1910.95).

State Regulations. The *New York Codes, Rules and Regulations* address airport noise abatement and permissible vehicle sound levels (NYCRR 2010); therefore, the state's noise regulations would not apply to the Proposed Action.

Local Regulations. Niagara Falls ARS is located in unincorporated Niagara County, New York. In New York State, land use decisions are generally the responsibility of local municipalities under the state's Municipal Law (Niagara County 2009). Therefore, local municipalities are responsible for developing noise-control regulations, and, as such, no noise-control regulations are applied to unincorporated Niagara County land (Tamburlin 2010).

Construction Sound Levels. Building demolition and construction work can cause an increase in sound that is well above the ambient level. A variety of sounds are emitted from loaders, trucks, saws, and other work equipment. **Table 3-2** lists noise levels associated with common types of construction equipment. Construction equipment usually exceeds the ambient sound levels by 20 to 25 dBA in an urban environment and up to 30 to 35 dBA in a quiet suburban area.

Table 3-2. Predicted Noise Levels for Construction Equipment

Construction Category and Equipment	Predicted Noise Level at 50 feet (dBA)
Clearing and Grading	
Bulldozer	80
Grader	80–93
Truck	83–94
Roller	73–75
Excavation	
Backhoe	72–93
Jackhammer	81–98
Building Construction	
Concrete mixer	74–88
Welding generator	71–82
Pile driver	91–105
Crane	75–87
Paver	86–88

Source: USEPA 1971

3.1.2 Affected Environment

The ambient sound environment throughout Niagara Falls ARS is affected mainly by aircraft operations and automobile traffic. The runways at Niagara Falls IAP are used by military aircraft from the Niagara Falls ARS and commercial aircraft. Military and commercial aircraft operations are the primary sound sources contributing to the ambient noise environment throughout the installation. Vehicles traveling south of the installation on Route 62 (Niagara Falls Boulevard) and Route 182 (Porter Road), east of the installation on Walmore Road, and north of the installation on Lockport Road; and the roadways within the installation boundary also contribute to the ambient noise environment. There is no appreciable difference between the ambient sound environments for each of the ten proposed construction projects.

3.2 Land Use

3.2.1 Definition of the Resource

The term “land use” refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. There is, however, no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, “labels,” and definitions vary among jurisdictions.

Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. Compatibility among land uses fosters the societal interest of obtaining the highest and best uses of real property. Tools supporting land use planning include written master plans/management plans and zoning regulations. According to AFI 32-7062, *Air Force Comprehensive Planning*, the site planning process must address potential noise impacts and consider the location of buildings. In appropriate cases, the locations and extent of proposed actions need to be evaluated for their potential effects on project site and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its “permanence.”

3.2.2 Affected Environment

The on- and off-installation land use information provided in the following paragraphs was obtained from the Niagara Falls ARS General Plan (Niagara Falls ARS 1998a).

The Niagara Falls ARS General Plan identifies nine land use categories: administrative, aircraft operations and maintenance, airfield, community, lodging, industrial, medical, open space, and outdoor recreation. There are three main land use types within the installation boundary: administrative, industrial, and aircraft operations and maintenance. The central portion of the installation is primarily composed of administrative land use areas. Two large parcels of industrial land use areas are in the western and eastern portions of the installation. These areas are surrounded by intermixed open space, community, and recreational land use types.

The Niagara Falls ARS land use plan emphasizes the consolidation of similar activities and the promotion of positive functional relationships between land uses. As older facilities are demolished, new buildings should be sited according to the plan. This effort is intended to result in the consolidation of aircraft operations and maintenance functions adjacent to the airfield. See **Figure 3-1** for existing land use at Niagara Falls ARS.

Most of the changes to the installation’s development pattern involve the consolidation of pockets of similar land use types to form larger land use areas yielding greater future development potential. Emphasis is also placed on preserving the 100-year floodplain and wetland areas by designating these sites as either open space or outdoor recreation areas. The key to successfully developing Niagara Falls ARS would be the identification and consolidation of compatible activities and the continued use of land use areas as opposed to individually sited facilities.

Niagara Falls ARS is a compact installation bounded by Tuscarora Road to the west, Lockport Road to the north, Walmore Road to the east, and Niagara Falls IAP to the south. The dominant feature on the southern side of the installation is the airfield, consisting of permanent and temporary aircraft parking aprons, apron access taxiways, and the Niagara Falls IAP property. Immediately adjacent to the airfield is a consolidated area devoted to aircraft operations and maintenance. Within this area are key operational facilities, including the fuels systems maintenance hangar, aircraft maintenance hangar, and aircraft maintenance shop, which are all served by the hangar access apron. An isolated operational area surrounds the engine test stand.

Immediately to the south of the installation is the main taxiway used by AFRC aircraft accessing Niagara Falls IAP. Further south are Niagara Falls IAP’s general aviation and passenger terminals and hangars, and the remainder of the airport’s runways and taxiways. The presence of these facilities effectively precludes the installation from constructing any facilities south of this point. To the north, west, and east are areas of rural to low-density residential and industrial land uses.

The Niagara County Legislature developed the Niagara Communities Comprehensive Plan 2030 as a result of an award from the New York State Qualities Communities Grant program. This initiative assisted the communities of Niagara County in developing the first comprehensive plan dedicated exclusively to Niagara County. The Plan was completed in July 2009 and addresses land use and environment; economic development; county services, facilities, and infrastructure; education; and public health and safety. The Comprehensive Plan identifies the Niagara Falls ARS/Niagara Falls IAP area as Community Services and No Information land uses (Niagara County 2009).

3.3 Air Quality

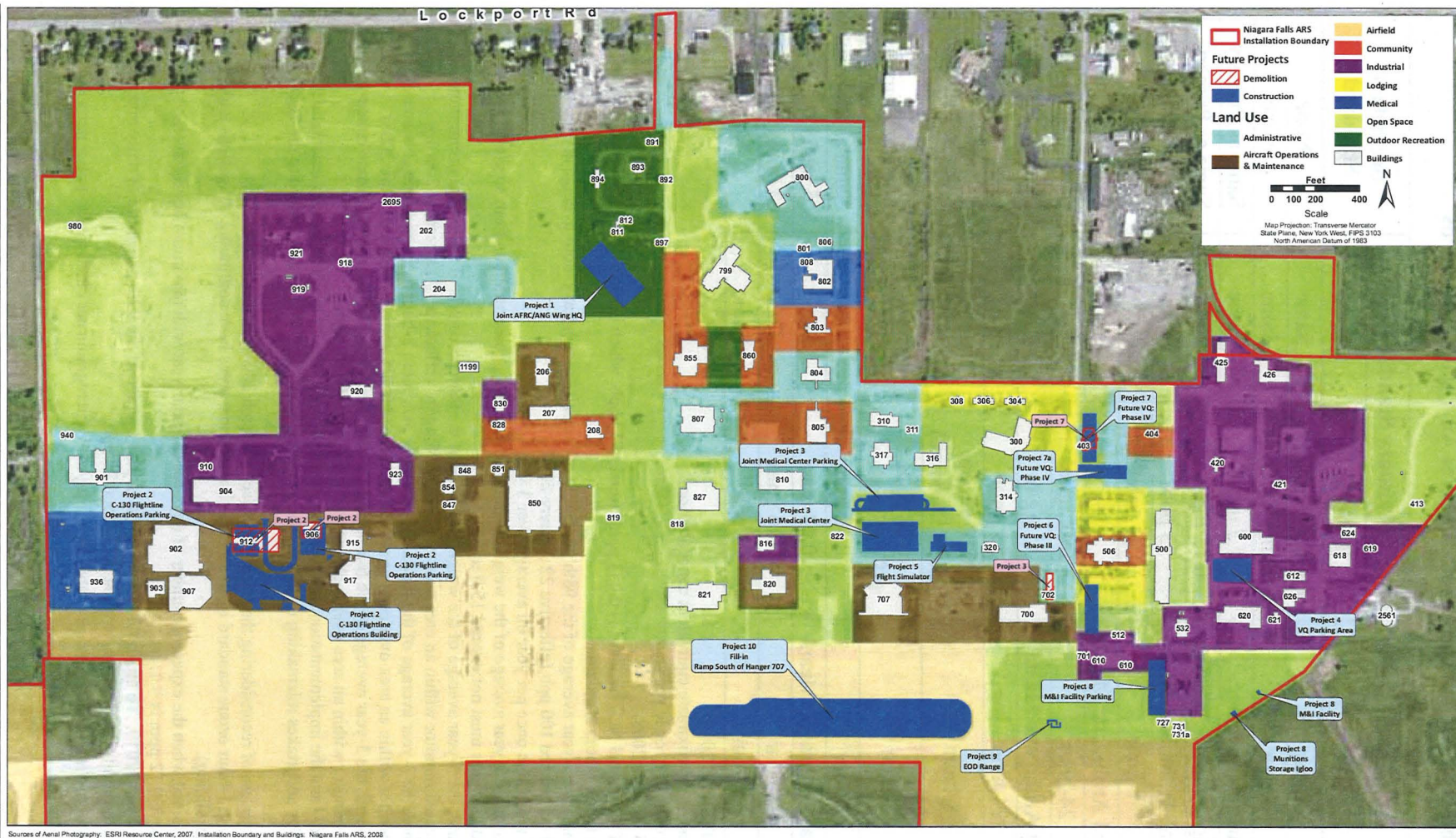
3.3.1 Definition of the Resource

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of criteria pollutants in the atmosphere. The air quality in a region is a result of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological “air basin,” and the prevailing meteorological conditions.

Under the CAA, the USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to affect human health and the environment. The NAAQS represent the maximum allowable concentrations for ozone (O₃) (measured as either volatile organic compounds [VOCs] or total nitrogen oxides [NO_x]), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur oxides (SO_x), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM₁₀] and particulate matter equal to or less than 2.5 microns in diameter [PM_{2.5}]), and lead (Pb) (40 CFR Part 50). The CAA also gives the authority to states to establish air quality rules and regulations. The State of New York has adopted the NAAQS and promulgated additional State Ambient Air Quality Standards (SAAQS) for criteria pollutants (New York Code of Rules and Regulations [NYCRR] Title 6, Subpart 257). **Table 3-3** presents the USEPA NAAQS and SAAQS.

The USEPA classifies the air quality in an air quality control region (AQCR), or in subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas within each AQCR are therefore designated as either “attainment,” “nonattainment,” “maintenance,” or “unclassified” for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS; nonattainment indicates that criteria pollutant levels exceed NAAQS; maintenance indicates that an area was previously designated nonattainment but is now attainment; and an unclassified air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment. USEPA has delegated the authority for ensuring compliance with the NAAQS to the New York State Department of Environmental Conservation (NYSDEC). In accordance with the CAA, each state must develop a State Implementation Plan (SIP), which is a compilation of regulations, strategies, schedules, and enforcement actions designed to bring the state into compliance with all NAAQS.

The General Conformity Rule requires that any Federal action meet the requirements of a SIP or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS. The General Conformity Rule applies only to regionally significant actions in nonattainment or maintenance areas.



Sources of Aerial Photography: ESRI Resource Center, 2007; Installation Boundary and Buildings: Niagara Falls ARS, 2008

Figure 3-1. Land Use at Niagara Falls ARS

Table 3-3. National and State Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standard		Secondary Standard
		Federal	State	
CO	8-hour ⁽¹⁾	9 ppm (10 mg/m ³)	Same	None
	1-hour ⁽¹⁾	35 ppm (40 mg/m ³)	Same	None
Pb	Quarterly average	1.5 µg/m ³	Same	Same as Primary
	Rolling 3-Month Average	0.15 µg/m ³ ⁽²⁾	--	Same as Primary
NO ₂	Annual Arithmetic Mean	53 ppb ⁽³⁾	50 ppb	Same as Primary
	1-hour	100 ppb ⁽⁴⁾	--	None
PM ₁₀	Annual Arithmetic Mean	--	--	Same as Primary
	24-hour ⁽⁵⁾	150 µg/m ³	--	Same as Primary
PM _{2.5}	Annual Arithmetic Mean ⁽⁶⁾	15 µg/m ³	--	Same as Primary
	24-hour ⁽⁷⁾	35 µg/m ³	--	Same as Primary
O ₃	8-hour ⁽⁸⁾	0.075 ppm (2008 Standard)	Same	Same as Primary
	8-hour ⁽⁹⁾	0.08 ppm (1997 Standard)	Same	Same as Primary
	1-hour ⁽¹⁰⁾	0.12 ppm	--	Same as Primary
SO ₂	Annual Arithmetic Mean	0.03 ppm	Same	0.5 ppm (3-hour) ⁽¹⁾
	24-hour ⁽¹⁾	0.14 ppm	Same	0.5 ppm (3-hour) ⁽¹⁾
	1-hour	75 ppb ⁽¹¹⁾	Same	None

Sources: USEPA 2010b, NYSDEC 2010a

Notes: Parenthetical values are approximate equivalent concentrations.

1. Not to be exceeded more than once per year.
2. Final rule signed 15 October 2008.
3. The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of cleaner comparison to the 1-hour standard.
4. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective 22 January 2010).
5. Not to be exceeded more than once per year on average over 3 years.
6. To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.
7. To attain this standard, the 3-year average of the weighted annual of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³ (effective 17 December 2006).
8. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective 27 May 2008).
9.
 - a. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
 - b. The 1997 standard – and the implementation rules for that standard – will remain in place for implementation purposes as USEPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
 - c. USEPA is in the process of reconsidering these standards (set in March 2008).
10.
 - a. USEPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard (anti-backsliding).
 - b. The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < 1.
11. Final rule signed on 2 June 2010. To attain this standard, the 3-year average of the 99th percentile of daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

Key: ppm = parts per million; mg/m³ = milligrams per cubic meter; µg/m³ = micrograms per cubic meter; ppb = parts per billion

On 22 September 2009, the USEPA issued a final rule for mandatory greenhouse gas (GHG) reporting from large GHG emissions sources in the United States. The purpose of the rule is to collect comprehensive and accurate data on carbon dioxide (CO₂) and other GHG emissions that can be used to inform future policy decisions. In general, the threshold for reporting is 25,000 metric tons or more of CO₂ equivalent per year. The first emissions report is due in 2011 for 2010 emissions. Although GHGs are not currently regulated under the CAA, the USEPA has clearly indicated that GHG emissions and climate change are issues that need to be considered in future planning. GHGs are produced by the burning of fossil fuels and through industrial and biological processes.

EO 13514 *Federal Leadership in Environmental, Energy, and Economic Performance*, was signed in October 2009 and requires agencies to set goals for reducing GHG emissions. One requirement within EO 13514 is the development and implementation of an agency Strategic Sustainability Performance Plan (SSPP) that prioritizes agency actions based on lifecycle return on investment. Each SSPP is required to identify, among other things, “agency activities, policies, plans, procedures, and practices” and “specific agency goals, a schedule, milestones, and approaches for achieving results, and quantifiable metrics” relevant to the implementation of EO 13514. Detailed agency implementation plans for EO 13514 were due in June 2010, when each Federal agency was to deliver an SSPP to the CEQ and the Office of Management and Budget. These implementation plans describe the specific actions agencies will take to achieve their individual GHG reduction targets, reduce long-term costs, and meet the full range of goals of the EO. The DOD *Strategic Sustainability Performance Plan* was made public on 26 August 2010, and is available at <http://www.whitehouse.gov/administration/eop/ceq/sustainability/plans>.

DOD guidance on analyzing and reporting GHGs has not yet been made public. The first air quality emissions report is due in 2011 for 2010 emissions. Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A major stationary source is a facility (i.e., plant, installation, or activity) that has the potential to emit more than 100 tons per year (tpy) of any one criteria air pollutant, 10 tpy of a hazardous air pollutant (HAP), or 25 tpy of any combination of HAPs.

Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A major stationary source is a facility (i.e., plant, installation, or activity) that has the potential to emit more than 100 tpy of any one criteria air pollutant, 10 tpy of a HAP, or 25 tpy of any combination of HAPs.

Federal Prevention of Significant Deterioration (PSD) regulations also define air pollutant emissions from proposed major stationary sources or modifications to be “significant” if (1) a proposed project is within 10 kilometers of any Class I area, and (2) regulated pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 microgram per cubic meter (µg/m³) or more [40 CFR 52.21(b)(23)(iii)]. PSD regulations also define ambient air increments, limiting the allowable increases to any area’s baseline air contaminant concentrations, based on the area’s designation as Class I, II, or III [40 CFR 52.21(c)]. According to 40 CFR Part 81, no Class I areas are in the vicinity of the Proposed Action. Therefore, Federal PSD regulations would not apply, and are not discussed further in this EA.

3.3.2 Affected Environment

The Proposed Action would occur in Niagara County, which is part of the Niagara Frontier Intrastate 162AQCR (NFIAQCR) (40 CFR 81.24). The NFIAQCR is classified as in Subpart 1 basic nonattainment for 8-hour O₃ and in attainment for all other criteria pollutants (USEPA 2010c). The most recent emissions inventories for Niagara County and the NFIAQCR are shown in **Table 3-4**. Niagara County is considered the local area of influence, and the NFIAQCR is considered the regional area of influence for the air quality analysis.

Table 3-4. Local and Regional Air Emissions

Air Quality Area of Influence	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
Niagara County, New York	16,681	14,290	58,117	7,676	9,099	2,140
NFIAQCR 162	55,425	60,307	321,103	58,441	32,324	7,765

Source: USEPA 2010d

Niagara Falls ARS is registered as a minor source of air emissions with the NYSDEC-based definitions and requirements listed under NYCRR Part 201-3.3, *Trivial Air Activities*. There are various stationary combustion sources on the installation that have the potential to emit criteria pollutants and HAPs, including the installation's boilers and generators. VOCs are emitted primarily from handling of organic liquids (i.e., refueling activities). Miscellaneous particulate matter sources at Niagara Falls ARS include dust collectors, abrasive blasting units, and woodworking equipment. Other stationary sources at Niagara Falls ARS include paint booths, degreasers, solvent cleaners, aircraft fuel cell maintenance, aircraft engine test cell, and wash racks. There is no permitted stationary equipment on Niagara Falls ARS. Mobile sources include aircraft operations, government-owned vehicles, privately owned vehicles, aerospace ground equipment, and other sources not included in the state's stationary source permitting program (Niagara Falls ARS 2011).

Niagara Falls ARS is required to prepare and retain emissions inventories for NYSDEC. The purpose of these emissions inventories is to estimate and document air pollutant emissions from stationary and mobile sources. Emissions inventories are retained at Base Civil Engineering in Building 403. **Table 3-5** summarizes the 2009 annual air emissions from stationary and mobile sources, potential to emit values, and major source thresholds.

Table 3-5. Reported Stationary and Mobile Source Air Emissions and Potential to Emit Values for Niagara Falls ARS

Air Emissions	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)	HAP (tpy)
Stationary Sources Actual Emissions	3.57	1.82	3.04	0.03	0.28	0.27	0.91
Stationary Sources Potential to Emit Values	55.16	10.42	40.93	0.92	4.07	4.04	4.49
Mobile Sources Actual Emissions	42.87	5.45	57.08	2.12	10.35	10.30	Not Reported
Major Source Threshold	100	50	100	100	100	100	25

Source: Niagara Falls ARS 2011

3.4 Safety

3.4.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human safety addresses (1) workers' health and safety

during construction and demolition activities, and (2) public safety during construction and demolition activities and during subsequent operations of those facilities.

Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous Department of Defense (DOD) and USAF regulations designed to comply with standards issued by OSHA and the USEPA. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Activities that can be hazardous include transportation, maintenance and repair activities, and the creation of extremely noisy environments. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation process creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

3.4.2 Affected Environment

All contractors performing construction activities are responsible for following ground safety regulations and worker compensation programs and are required to conduct construction and related activities in a manner that does not pose any risks to workers or personnel. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and availability of material safety data sheets. Industrial hygiene is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplace operations; to monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous material), physical (e.g., noise propagation), and biological (e.g., infectious waste) agents; to recommend and evaluate controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and to ensure that a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures.

There are emergency services (i.e., police, fire, and ambulance services) in the City of Niagara Falls approximately 5 miles southwest of Niagara Falls ARS. Therefore, potential emergency situations can be responded to quickly. A 300- to 400-foot QD arc surrounds the installation's munitions storage area associated with Building 820 (Niagara Falls ARS 1998a).

3.5 Water and Soil Resources

3.5.1 Definition of the Resource

3.5.1.1 Water Resources

Hydrology consists of the redistribution of water through the processes of evapotranspiration, surface runoff, and subsurface flow. Hydrology results primarily from (1) temperature and total precipitation that determine evapotranspiration rates, (2) topography which determines rate and direction of surface flow,

and (3) soil and geologic properties that determine rate of subsurface flow and recharge to the groundwater reservoir.

Groundwater consists of subsurface hydrologic resources. It is an essential resource that functions to recharge surface water and is used for drinking, irrigation, and industrial processes. Groundwater typically can be described in terms of depth from the surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations. Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale.

Waters of the United States are defined within the Clean Water Act (CWA), as amended, and jurisdiction is addressed by the USEPA and the U.S. Army Corps of Engineers (USACE). These agencies assert jurisdiction over (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) nonnavigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-around or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries. Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge or fill into waters of the United States including wetlands. Encroachment into waters of the United States and wetlands requires a permit from the state and the Federal government. An encroachment into wetlands or other "waters of the United States" resulting in displacement or movement of soil or fill materials has the potential to be viewed as a violation of the CWA if an appropriate permit has not been issued by the USACE. In New York, the USACE has primary jurisdictional authority to regulate wetlands and waters of the United States.

A water body can be deemed impaired if water quality analyses conclude that exceedances of water quality standards, established by the CWA, occur. The CWA requires that states establish a Section 303(d) list to identify impaired waters and establish Total Maximum Daily Loads (TMDLs) for the sources causing the impairment. A TMDL is the maximum amount of a substance that can be assimilated by a water body without causing impairment.

Niagara Falls ARS complies with storm water runoff regulations adopted by New York State. The *New York State Stormwater Management Design Manual* (NYSDEC 2010b) provides a general overview on how to size, design, select, and locate storm water management practices at a development site to comply with state storm water performance standards. State storm water regulations are more stringent than Federal regulations because up to 24 hours of detention for runoff generated from a 1-year, 24-hour storm event is required. The purpose of this regulation is that runoff would be stored and released in such a gradual manner that critical erosive velocities would seldom be exceeded in downstream channels. This regulation protects receiving water bodies from smaller storm events than are required to be analyzed under Federal regulations. In addition, pre- and post-development hydrology must remain equal. Coverage under a State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity must be obtained prior to any construction activity commencing that would disturb one or more acres of soil. In addition, wetlands are protected under EO 11990, *Protection of Wetlands*, the purpose of which is to reduce adverse impacts associated with the destruction or modification of wetlands. This order directs Federal agencies to provide leadership in minimizing the destruction, loss, or degradation of wetlands. In furtherance of NEPA, agencies shall avoid undertaking or assisting in new construction in wetlands unless there is no practical alternative. Each agency will provide opportunity for early public review of plans and proposals for construction in wetlands, including those whose impact is not significant to require EIS preparation. The Deputy Assistant Secretary of the Air Force - Environment, Safety, and Occupational Health or another designated official must sign a FONPA before any action within a Federal wetland may proceed as specified in Secretary of the Air Force Order 780.1. The recently revised AFI 32-7064 grants approval authority to the chairperson of the

Headquarters AFRC Environmental Protection Committee for wetlands encroachment FONPAs. In preparing a FONPA, the installation must consider the full range of practicable alternatives that will meet justified program requirements, are within the legal authority of the U.S. Army, meet technology standards, are cost-effective, do not result in unreasonable adverse environmental impacts, and other pertinent factors. Once the practicality of alternatives has been fully assessed, only then should a statement regarding the FONPA be made into the associated FONSI or record of decision.

Wetlands are also protected in New York State under Article 24 of the New York Environmental Conservation Law, commonly known as the Freshwater Wetlands Act (the Act or Article 24). Freshwater wetlands, as defined by the Act, are wetland areas 12.4 acres or larger (except under special circumstances). The Act protects the wetland and a 100-foot protective buffer surrounding it.

As a result of Federal and state regulations, it is the responsibility of the USAF to identify and locate jurisdictional waters of the United States (including wetlands) occurring on USAF installations where these resources have the potential to be impacted by installation activities. Such impacts include construction of roads, buildings, runways, taxiways, navigation aids, and other appurtenant structures; or activities as simple as culvert crossings of small intermittent streams, rip-rap placement in stream channels to curb accelerated erosion, and incidental fill and grading of wet depressions.

Floodplains are areas of low-level ground along rivers, stream channels, or coastal waters. The living and nonliving parts of natural floodplains interact with each other to create dynamic systems in which each component helps to maintain the characteristics of the environment that supports it. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, nutrient cycling, water quality maintenance, and a diversity of plants and animals. Floodplains provide a broad area to inundate and temporarily store floodwaters. This reduces flood peaks and velocities and the potential for erosion. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body (FEMA 1986).

Floodplains are subject to periodic or infrequent inundation due to rain or melting snow. Risk of flooding typically hinges on local topography, the frequency of precipitation events, and the size of the watershed above the floodplain. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain. The 100-year floodplain is the area that has a 1 percent chance of inundation by a flood event in a given year. Certain facilities inherently pose too great a risk to be in either the 100- or 500-year floodplain, such as hospitals, schools, or storage buildings for irreplaceable records. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

EO 11988, *Floodplain Management*, requires Federal agencies to determine whether a proposed action would occur within a floodplain. This determination typically involves consultation of FEMA Flood Insurance Rate Maps (FIRMs), which contain enough general information to determine the relationship of the project area to nearby floodplains. EO 11988 directs Federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative.

Niagara Falls ARS activities are regulated by the NYSDEC. The Environmental Conservation Law established NYDEC and authorizes its programs. Under this law, the NYSDEC has developed regulations to protect the state's water bodies, including watershed management, monitoring, and assessment, storm water management, and water quality management planning programs.

3.5.1.2 Soil Resources

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

Prime farmland is protected under the Farmland Protection Policy Act (FPPA) of 1981. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The soil qualities, growing season, and moisture supply are needed for a well-managed soil to produce a sustained high yield of crops in an economic manner. The land could be cropland, pasture, rangeland, or other land, but not urban built-up land or water. The intent of the FPPA is to minimize the extent that Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. The Act also ensures that Federal programs are administered in a manner that, to the extent practicable, will be compatible with private, state, and local government programs and policies to protect farmland.

The implementing procedures of the FPPA and National Resources Conservation Service (NRCS) require Federal agencies to evaluate the adverse effects (direct and indirect) of their activities on prime and unique farmland, and on farmland of statewide and local importance, and to consider alternative actions that could avoid adverse effects. Determination of whether an area is considered prime or unique farmland and potential impacts associated with a proposed action is based on preparation of the farmland conversion impact rating form AD-1006 for areas where prime farmland soils occur and by applying criteria established at Section 658.5 of the FPPA (7 CFR 658). The NRCS is responsible for overseeing compliance with the FPPA and has developed the rules and regulations for implementation of the act (see 7 CFR Part 658, 5 July 1984).

3.5.2 Affected Environment

3.5.2.1 Water Resources

Hydrology. The topography in the vicinity of Niagara Falls ARS is flat, dipping slightly to the south, with extremes in elevation of 578 to 600 feet above mean sea level. The installation is in the Lake Erie-Niagara River Basin. There are about 5,390 miles of rivers and streams and 24 large lakes, ponds, and reservoirs covering 1,098 acres in the basin (NYSDEC 2009).

Groundwater. Aquifers underlying the installation are composed of carbonate rocks, consistent with the geology of the Central Lowland province of New York. Groundwater storage and movement occurs to the east-southeast, primarily through secondary fractures. Groundwater quality is poor due to the presence of dissolved minerals such as calcite, dolomite, gypsum, and halite. Water quality deteriorates with depth in the Lake Erie-Niagara River Basin. No potable water wells are present at Niagara Falls ARS, but groundwater monitoring wells are present throughout the installation in support of the USAF's Installation Restoration Program (IRP) (Niagara Falls ARS 2009d, Niagara Falls ARS 2009e). Groundwater is sampled semi-annually as VOCs have been detected in some wells. This is discussed further in **Section 3.9**.

Surface Water. The major surface water feature at Niagara Falls ARS is Cayuga Creek. Cayuga Creek enters the installation from the east at the Walmore Road gate and flows west along the southern border of the installation, dividing the Niagara Falls ARS from the Niagara Falls IAP. Cayuga Creek ultimately drains into the Niagara River, upstream of American and Horseshoe Falls. In addition to Cayuga Creek,

two artificial tributaries convey storm water off the installation. The primary tributary directing storm water off-installation originates in the northwestern portion of the installation and flows south through the center of Niagara Falls ARS. The secondary tributary flows north to south along the western end of the airfield.

Seven outfalls collect storm water from impervious surfaces. These outfalls are monitored on a quarterly basis by Niagara Falls ARS for water quality. NYSDEC issued a baseline General State Pollutant Discharge Elimination System (SPDES) Permit for Storm Water Discharges Associated with Industrial Activity in June 1993. Niagara Falls ARS was accepted for coverage under this General Permit (SPDES Permit No. NYR00B522) on 30 November 1994. The SPDES general permit (GP-93-05) expired on 1 August 1998, and was extended by NYSDEC as GP-98-03 until 31 October 1998. The permit has been reissued as GP-98-03 for a 5-year period effective 1 November 1998, and is substantially the same as the previous permit. The current permit was administratively extended until a new permit could be issued.

The General Permit has since been renewed and revised so it more closely reflects the USEPA's Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity. This revised General Permit (renumbered as GP-0-06-002) became effective on 27 March 2007 and will expire on 27 March 2012. The General Permit requires quarterly visual inspections of storm water, annual dry weather flow inspections at storm water outfalls, and submittal of an annual certification report form.

NYSDEC also issued a General Permit for Storm Water Discharges Associated with Construction Activities (Permit No. GP-0-10-001, issued 29 January 2010). A Storm Water Pollution Prevention Plan (SWPPP) would be developed to minimize the effects of storm water pollution into surface waters. The General Permit for Storm Water Discharges Associated with Construction Activities states that water quality must be maintained, by ensuring there are "no increase in turbidity that will cause a substantial visible contrast to natural conditions...no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and...no residue from oil and floating substances, nor visible oil film, nor globules of grease" (NYSDEC 2010c).

The permits with coverage notices are provided in **Appendix B** and **Appendix C** of the SWPPP, respectively (Niagara Falls ARS 2009d).

Project 2 (C-130 Flightline Operations Facility) would be constructed over an unregulated drainage ditch, and the ditch would be relocated (Mathews 2011). Other projects associated with the Proposed Action that would occur nearby water bodies include Project 1 (Joint AFRC/ANG Wing Headquarters Facility) and Project 10 (Fill-In Ramp South of Hangar 707). Project 1 would be approximately 250 feet to the east of Cayuga Creek. Project 10 would be 200 feet to the north of Cayuga Creek.

Wetlands. Wetlands on the installation were identified following the procedures defined in the 1987 USACE *Wetlands Delineation Manual* (USACE 1987). Delineation of jurisdictional wetlands was based on the occurrence of the following three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. A letter from the USACE Buffalo District states that this delineation is valid for 5 years from October 2003. An updated wetland delineation for Niagara Falls ARS was completed in 2008 and a jurisdictional determination from the USACE was issued on 10 November 2009, as shown in **Appendix D** (USACE 2009).

An emergent marsh/shrub wetland (named TW-1) covering 72 acres west of the Niagara Falls IAP main runway was delineated in 1992 by NYSDEC. A small portion of TW-1 is on Niagara Falls ARS property. There is a small area of overlap between TW-1 and the jurisdictional wetland mapped as Wetland ABC. Currently, Niagara Falls ARS has a permit (Permit 90-87-0946) from NYSDEC for management of this wetland area and its 100-foot buffer west of Runway 10L-28R. This permit allows

the 914 AW to remove emergent trees and brush and to periodically mow approximately 4 acres of the wetland and its 100-foot buffer zone within the installation boundaries (Niagara Falls ARS 2004).

The 2008 delineation of wetlands and other waters of the United States at Niagara Falls ARS identified approximately 38 acres of jurisdictional wetlands or waters of the United States on the installation (USACE 2009). Most of the wetlands are in the southwestern portion of the Niagara Falls ARS and are classified as palustrine scrub-shrub/emergent wetlands. Although impacted by ongoing vegetation maintenance and by historic filling and grading, these wetlands do provide some functions such as alteration of flood flow, storm water retention, and wildlife habitat. The proximity of these separate wetlands to each other and to the TW-1 wetland can also provide refuge and act as a corridor for wildlife, and possibly direct them away from the runways and taxiways.

The wetlands in the northern and northeastern portion of Niagara Falls ARS primarily provide alteration of flood flow and storm water retention. The high level of disturbance (primarily caused by mowing activities) and proximity to buildings and recreational areas reduces the ability of the wetlands to provide good quality wildlife habitat (Niagara Falls ARS 2005a).

No wetlands have been mapped within or adjacent to any of the projects associated with the Proposed Action.

Waters of the United States. As shown in the 10 November 2009 jurisdictional determination from the USACE (see **Appendix D**), the Wetland W tributary is a jurisdictional ephemeral drainage swale associated with an abandoned railroad track. It is a heavily maintained drainage channel constructed to convey storm water runoff along the railroad bed and is bounded on two sides by the raised railroad bed. The Wetland W tributary flows east and southeast to Cayuga Creek. Since the Wetland W tributary is connected to Cayuga Creek, a navigable stream that empties into the Niagara River, it has been classified as a jurisdictional waters of the United States by the USACE (see **Appendix D**) (USACE 2009). The Wetland W tributary is approximately 1,293 linear feet and 5 to 6 feet wide.

No other waters of the United States have been identified on Niagara Falls ARS.

Floodplains. Proposed 2008 FEMA FIRMs covering the Niagara Falls ARS, Community Panel No. 36063C0327E show that lands adjacent to Cayuga Creek and its tributaries are within the mapped 100-year floodplain. This includes the area to the west of the runway and through the central portion of the installation. The remainder of the installation composes an area of minimal flooding (FEMA 2008, FEMA undated). None of the projects associated with the Proposed Action would be within the 100-year floodplain (see **Figure 2-2**). Of the projects associated with the Proposed Action, Projects 1 (Joint AFRC/ANG Wing Headquarters Facility) and 10 (Fill-In Ramp South of Hangar 707) would be closest to floodplains. Project 1 would be approximately 200 feet from the floodplain, and Project 10 would be 75 feet from the floodplain.

3.5.2.2 Soil Resources

The U.S. Department of Agriculture's NRCS mapped and classified the installation's soils in 2006. Niagara Falls ARS occupies level to gently sloping land areas dominated by two soils mapping units. Primary soil series within these mapping units are the Odessa silty clay loam and the Lakemont silty clay loam. These soils formed in glacial material deposited during and shortly after the Ice Age (the Pleistocene epoch, approximately 1.8 million to 10,000 years ago). The Odessa soil, a moderately fine textured soil, covers a majority of the area to the north of Cayuga Creek. It is somewhat poorly drained, has moderately low permeability, and a seasonal high water table at 6 to 12 inches below ground surface (bgs). The remainder of the installation is underlain by the Lakemont soil series, a moderately coarse and medium-textured soil that is poorly to very poorly drained, with moderately low permeability at the

surface and low permeability in the subsoil. The seasonal high water table is at or immediately below ground surface. The capacity of both soils to retain water is high, and the erosion potential is minimal (NRCS 2006). Approximately half of the installation is overlain by pavement and other impermeable surfaces. If drained, the Odessa soil would be considered a prime farmland soil. However, these soils are not currently drained and would not be drained under the Proposed Action, and therefore, would be not considered prime farmland soils as defined by the FPPA.

3.6 Biological Resources

3.6.1 Definition of the Resource

Biological resources include native or naturalized plants and animals and the habitats (e.g., wetlands, forests, and grasslands) in which they exist. Protected and sensitive biological resources include federally listed (endangered or threatened), proposed, and candidate species, and designated or proposed critical habitat; species protected under other Federal laws (see **Appendix A**); species of special concern managed under Conservation Agreements or Management Plans; and state-listed species.

Under the Endangered Species Act (ESA) (16 U.S.C. 1536), an “endangered species” is defined as any species in danger of extinction throughout all or a significant portion of its range. A “threatened species” is defined as any species likely to become an endangered species in the foreseeable future. The USFWS also maintains a list of species considered to be candidates for possible listing under the ESA. Although candidate species receive no statutory protection under the ESA, the USFWS has attempted to advise government agencies, industry, and the public that these species are at risk and might warrant protection under the Act.

3.6.2 Affected Environment

Vegetation

Niagara Falls ARS lies within the Beech-Maple Forest Section of the Eastern Deciduous Forest Ecological Province, which is characterized by temperate deciduous forests. Niagara Falls ARS was historically a mixed hardwood forest; however, the forest was logged during the 1800s and cleared for agricultural uses. Farming and urban development have resulted in very limited forest acreage in the vicinity of the installation. Most of the installation is urbanized and the original vegetation has been removed or significantly altered by development, construction, landscaping, and other disturbances. Consequently, there is very little opportunity for historic native plant communities to occur on Niagara Falls ARS. The vegetative species diversity at Niagara Falls ARS is relatively low and there have been no observations made of any unique native vegetative species occurring on the installation (Niagara Falls ARS 1998b).

Turf grasses and various broadleaf weeds are the predominant vegetation type on Niagara Falls ARS. Grass varieties consist of common introduced species, including Kentucky bluegrass (*Poa pratensis*), tall fescue (*Festuca arundinacea*), orchardgrass (*Dactylis glomerata*), Italian ryegrass (*Lolium multiflorum*), red top (*Agrostis alba*), creeping red fescue (*Festuca rubra*), colonial bent grass (*Agrostis tenuis*), and timothy (*Phleum pratense*). A variety of shrubs and trees, mostly introduced species, are also present on Niagara Falls ARS. Shrub species that are common on the installation include blue pfitzer juniper (*Chinesis glauca hetzel*), pyramidal yew (*Taxus caspidata capitata*), and spreading yew (*Taxus caspidata*). Tree species that are common on the installation include white pine (*Pinus strobus*), Scotch pine (*Pinus sylvestris*), green ash (*Fraxinus lanceolata*), red maple (*Acer rubrum*), and Lombardy poplar (*Populus nigra italica*) (Niagara Falls ARS 1998b).

Wildlife

Common mammals on Niagara Falls ARS include the meadow vole (*Microtus pennsylvanicus*), coyote (*Canus lutrans*), white-tailed deer (*Odocoileus virginianus*), beaver (*Castor canadensis*), deer mouse (*Peromyscus maniculatus*), eastern cottontail rabbit (*Sylvilagus floridanus*), muskrat (*Ondatra zibethica*), raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), striped skunk (*Mephitis mephitis*), and woodchuck (*Marmota monax*) (Niagara Falls ARS 2001c).

Sixty native bird species have been identified on Niagara Falls ARS during the 2007 breeding season (May through August) and November 1997 through July 1999 (see **Table 3-6**). Of these species, 29 are either grassland obligates, are common to grassland habitats, or occasionally occur in grassland habitats. Seventeen of these species are either wetland obligates or are common to wetland habitats. Fifteen species are found in woodlands or along forest edges. Three are commonly found near bodies of water. Some species are found within more than one habitat.

The most common bird species at Niagara Falls ARS include the red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), gulls (*Larus spp.*), eastern meadowlark (*Sturnella magna*), savannah sparrow (*Passerculus sandwichensis*), rock dove (*Columbia livia*), mourning dove (*Zenaida asiatica*), killdeer (*Charadrius vociferous*), American crow (*Corvus brachyrhynchos*), and great blue heron (*Ardea herodias*). Common species on the installation during winter months include the mallard (*Anas platyrhynchos*), American black duck (*A. rubripes*), Canada goose (*Branta canadensis*), and great blue heron. Cayuga Creek provides winter habitat for these species (Niagara Falls ARS 2001c).

Six species of reptiles and amphibians were observed during surveys conducted by the USFWS from 1997 to 1999, including the snapping turtle (*Chelydras serpentina*), midland painted turtle (*Chrysemys picta marginata*), eastern garter snake (*Thamophis sirtalis*), northern leopard frog (*Rana pipiens*), wood frog (*Rana sylvatica*), and eastern box turtle (*Terrapene carolina carolina*).

Wood frogs and northern leopard frogs generally occur in the southwestern portion of the property in the wetland area and along edges of Cayuga Creek and ditches. Snapping turtles and painted turtles were commonly seen in areas throughout Cayuga Creek and the ditches. The eastern garter snake is commonly found in the grassland areas and along drainage ditches. One unconfirmed sighting of an eastern box turtle occurred in 1998 adjacent to Cayuga Creek (Niagara Falls ARS 2001c). No reptile or amphibian species were found in sampling sites within Cayuga Creek during the May, July, and August 2007 or September 2008 USFWS surveys (Niagara Falls ARS 2009f).

Grassland communities are the predominant habitat type on the installation. NYSDEC has indicated that the installation's grassland habitat has regional importance for supporting a variety of grassland bird species (Niagara Falls ARS 1998b). The semi-improved grassy areas adjacent to taxiways are a vast area of grassland that attract many bird species including several New York State-listed threatened, endangered, and special concern grassland species. Wetland communities, although limited, are another habitat type on the installation, and are the preferred habitat for the majority of the freshwater wading bird populations in western New York (Niagara Falls ARS 1998b).

Preliminary information gathered suggests that the majority of the habitat present on Niagara Falls ARS has a moderate value in relation to its ability to support the maximum native species richness of birds, mammals, reptiles, and amphibians; however, USFWS and NYSDEC recognize that fish and wildlife opportunities at Niagara Falls ARS are limited because the installation is relatively small, confined, and situated in an industrial and agricultural area. The potential fish habitat on Niagara Falls ARS consists of Cayuga Creek and its unnamed tributaries. Intermittent flow and limited aquatic habitat attribute to the relatively low value of these waterways in relation to their regional ability to support aquatic species (Niagara Falls ARS 1998b).

Protected and Sensitive Species

In 1997, 1998, 2001, 2006, 2007, and 2008 the USFWS - Lower Great Lakes Fishery Resources Office (LGLFRO) conducted surveys for federally and state-listed endangered, threatened, and special concern species, and inventories of the natural communities and habitats on Niagara Falls ARS (Niagara Falls ARS 1998b, Niagara Falls ARS 2001c, Niagara Falls ARS 2009f). No federally threatened or endangered species have been observed on Niagara Falls ARS. Seven New York State-listed bird species (i.e., threatened, endangered, and species of special concern) have been observed on the installation: the upland sandpiper (*Bartramia longicauda*), short-eared owl (*Asio flammeus*), northern harrier (*Circus cyaneus*), grasshopper sparrow (*Ammodramus savannarum*), American bittern (*Botaurus lentiginosus*), least bittern (*Ixobrychus exilis*), and horned lark (*Eremophila alpestris*). These species and their occurrence on Niagara Falls ARS are described in greater detail in the following paragraphs. Due to habitat types on the installation and historic ranges of several species, additional federally and state-listed threatened and endangered species and special concern species have potential to occur on Niagara Falls ARS.

The USFWS is unable to confirm the presence of the eastern prairie fringed orchid (*Platanthera leucophea*) on the installation; however, historical information indicates that the species previously inhabited the area (Niagara Falls ARS 2009e). The eastern prairie fringed orchid was not found in sampling sites during May, August, and September 1998 USFWS vegetation surveys (Niagara Falls ARS 1998b). Based on bat surveys conducted in 2007, USFWS-LGLFRO determined that, due to the lack of summer roosting habitat and the lack of major food orders, bats in general do not use Niagara Falls ARS. The resources that bats require for survival are not provided at the installation, especially the specific resource requirements needed for the Indiana bat (*Myotis sodalist*) and eastern small-footed myotis (*M. leibii*) (Niagara Falls ARS 2009f).

Threatened and endangered species and species of special concern identified as currently occurring, historically occurring, or potentially occurring on Niagara Falls ARS are shown in **Table 3-7**. These species are identified by one of the following categories: occurs, migrates through, or historic range. The term “occurs” refers to a species inhabiting the installation on a continuing basis. The term “migrates through” refers to a species inhabiting the installation on an indiscriminate basis. The term “historic range” is used when Federal or state agencies are unable to confirm the presence of a species on the installation due to insufficient data, but where historical information indicates that the species previously inhabited or migrated through the area.

Grasshopper sparrow. The grasshopper sparrow, state-listed as a special concern species, prefers grasslands with low to moderate grass heights. The Niagara Falls ARS has extensive grassland fields where grasshopper sparrows might nest. Surveys for the USFWS inventory observed grasshopper sparrows on several survey plots near the runway. The USFWS inventory report concluded that repeated sightings during the breeding season suggest breeding activity on the Niagara Falls ARS and that the grassland areas on the installation provide quality habitat for this species (Niagara Falls ARS 2001c).

Northern Harrier. The northern harrier is state-listed as threatened and was observed regularly at Niagara Falls ARS foraging low over many of the fields. The northern harrier is an open country species that breeds in moderate to tall grasslands with dense vegetation and abundant residual vegetation (Niagara Falls ARS 2005a). It is also associated with wetlands (e.g., freshwater and saltwater marshes, swamps and bogs, wet meadows), hay meadows, cultivated and noncultivated farmland, and shrub-steppe habitats (Niagara Falls ARS 1999a). The northern harrier generally uses grassland dominated by thick vegetation and wetlands for nesting (Niagara Falls ARS 2005a). Nests are difficult to locate as these raptors nest on elevated ground concealed by vegetation. It is unlikely that the northern harrier nested in areas that were considered semi-improved where mowing periodically occurs at the installation (Niagara Falls ARS 2009f). Nesting proximal to the installation has been confirmed by the NYSDEC Breeding Bird Atlas (NYSDEC 2007).

Table 3-6. Native Bird Species Observed at Niagara Falls ARS during 2007 Breeding Season (May through August) and November 1997 to July 1999

Common Name	Scientific Name
American bittern ¹	<i>Botaurus lentiginosus</i>
American black duck ¹	<i>Anas rubripes</i>
American coot ¹	<i>Fulica Americana</i>
American crow ³	<i>Corvus brachyrhynchos</i>
American goldfinch ²	<i>Carduelis tristis</i>
American kestrel ²	<i>Falco sparverius</i>
American robin ²	<i>Turdus migratorius</i>
American tree sparrow ^{1,2}	<i>Spizella arborea</i>
American woodcock ¹	<i>Scolopax minor</i>
Baltimore oriole ³	<i>Icterus galbula</i>
Bank swallow ^{1,2}	<i>Riparia riparia</i>
Barn swallow ²	<i>Hirundo rustica</i>
Belted kingfisher ¹	<i>Ceryle alcyon</i>
Black-capped chickadee ³	<i>Poecile atricapilla</i>
Black-crowned night-heron ¹	<i>Nycticorax nycticorax</i>
Blue jay ³	<i>Cyanocitta cristata</i>
Bobolink ²	<i>Dolichonyx oryzivorus</i>
Canada goose ^{1,2}	<i>Branta Canadensis</i>
Cedar waxwing ³	<i>Bombycilla cedrorum</i>
Chipping sparrow ²	<i>Spizella passerine</i>
Common grackle ²	<i>Quiscalus quiscula</i>
Common yellowthroat ^{1,2}	<i>Geothlypis trichas</i>
Eastern kingbird ²	<i>Tyrannus tyrannus</i>
Eastern meadowlark ²	<i>Sturnella magna</i>
Eastern phoebe ³	<i>Sayornis phoebe</i>
Eastern towhee ³	<i>Pipilo erythrophthalmus</i>
Field sparrow ²	<i>Spizella pusilla</i>
Grasshopper sparrow ²	<i>Ammodramus savannarum</i>
Gray catbird ³	<i>Dumetella carolinensis</i>
Great blue heron ¹	<i>Ardea Herodias</i>
Great egret ¹	<i>Ardea alba</i>
Green heron ¹	<i>Butorides virescens</i>
Horned lark ²	<i>Eremophila alpestris</i>
House wren ³	<i>Troglodytes aedon</i>
Killdeer ²	<i>Charadrius vociferus</i>

Common Name	Scientific Name
Mallard ¹	<i>Anas platyrhynchos</i>
Mourning dove ²	<i>Zenaida macroura</i>
Northern cardinal ³	<i>Cardinalis cardinalis</i>
Northern flicker ³	<i>Colaptes auratus</i>
Northern harrier ²	<i>Circus cyaneus</i>
Northern mockingbird ³	<i>Mimus polyglottos</i>
Northern rough-winged swallow ²	<i>Stelgidopteryx serripennis</i>
Osprey ⁴	<i>Pandion haliaetus</i>
Purple finch ³	<i>Carpodacus purpureus</i>
Red-tailed hawk ²	<i>Buteo jamaicensis</i>
Red-winged blackbird ^{1,2}	<i>Agelaius phoeniceus</i>
Ring-billed gull ⁴	<i>Larus delawarensis</i>
Ring-necked pheasant ²	<i>Phasianus colchicus</i>
Savannah sparrow ²	<i>Passerculus sandwichensis</i>
Short-eared owl ²	<i>Asio flammeus</i>
Song sparrow ²	<i>Melospiza melodia</i>
Snowy owl ²	<i>Nyctea scandiaca</i>
Spotted sandpiper ¹	<i>Actitis macularia</i>
Tree swallow ^{1,2}	<i>Tachycineta bicolor</i>
Upland sandpiper ²	<i>Bartramia longicauda</i>
White-throated sparrow ²	<i>Zonotrichia albicollis</i>
Warbling vireo ³	<i>Vireo gilvus</i>
Willow flycatcher ²	<i>Empidonax traillii</i>
Wood thrush ³	<i>Hylocichla mustelina</i>
Yellow warbler ¹	<i>Dendroica petechia</i>

Sources: Niagara Falls ARS 2001c, Niagara Falls ARS 2009f

Notes:

1. Species is an obligate wetland species or is commonly observed in wetland habitats.
2. Species is an obligate grassland species or is commonly observed in grassland habitats.
3. Species commonly found in woodlands or along forest edges.

The northern harrier was identified on Niagara Falls ARS in November 1997 and in May 1998, both occurrences in open grassland near the runway. The 2001 USFWS inventory report concluded that the northern harrier uses the Niagara Falls ARS for foraging; however, no nesting on site was confirmed (Niagara Falls ARS 2001c). The installation's habitat was described as consistent with northern harrier preferred habitat, including areas along the runways in the southern half of the installation. The project sites for the Proposed Action were not included in the eligible habitat areas described by USFWS (Niagara Falls ARS 1999a).

**Table 3-7. Threatened and Endangered Species
Identified or Potentially Occurring on Niagara Falls ARS**

Common Name	Scientific Name	Status		Presence on Niagara Falls ARS
		Federal	State	
Mammals				
Allegheny woodrat	<i>Neotoma floridana</i>	NL	E	Historic range
Indiana bat	<i>Myotis sodalist</i>	E	E	Historic range
Eastern small-footed myotis	<i>Myotis leibii</i>	NL	SC	Historic range
Birds				
American bittern	<i>Botaurus lentiginosus</i>	NL	SC	Occurs
Peregrine falcon	<i>Falco peregrines</i>	NL	E	Migrates through
Bald eagle ¹	<i>Haliaeetus leucocephalus</i>	D	T	Migrates through
Common nighthawk	<i>Chordelles minor</i>	NL	SC	Migrates through
Common tern	<i>Sterna hirundo</i>	NL	T	Migrates through
Grasshopper sparrow	<i>Ammodramus savannarum</i>	NL	SC	Occurs
Henslow's sparrow	<i>Ammodramus henslowii</i>	NL	T	Historic range
Horned lark	<i>Eremophila alpestris</i>	NL	SC	Occurs
Least bittern	<i>Ixobrychus exilis</i>	NL	T	Occurs
Loggerhead shrike	<i>Lanius ludovicianus</i>	NL	E	Historic range
Northern harrier	<i>Circus cyaneus</i>	NL	T	Occurs
Osprey	<i>Pandion haliaetus</i>	NL	SC	Migrates through ³
Piping plover ²	<i>Charadrius melodus</i>	E	E	Migrates through
Red-shouldered hawk	<i>Buteo lineatus</i>	NL	SC	Migrates through
Short-eared owl	<i>Asio flammeus</i>	NL	E	Occurs
Upland sandpiper	<i>Bartramia longicauda</i>	NL	T	Occurs
Vesper sparrow	<i>Poocetes gramineus</i>	NL	SC	Historic range
Amphibians and Reptiles				
Eastern box turtle	<i>Terrapene Carolina</i>	NL	SC	Occurs ⁴
Northern cricket frog	<i>Acris crapitans</i>	NL	E	Historic range
Queen snake	<i>Regina septemvittata</i>	NL	E	Historic range
Plants				
Eastern prairie fringed orchid	<i>Platanthera leucophea</i>	NL ⁵	SH	Historic range

Sources: Niagara Falls ARS 2001c, Niagara Falls ARS 2009f, NYSDEC 2010d, USFWS 2010a, USFWS NYFO 2009, NY Natural Heritage 2007, NY Natural Heritage 2008

Notes:

1. The bald eagle was delisted on August 8, 2007. While there are no ESA requirements after this date, the eagles continue to receive protection under the Bald Eagle Protection Act.
2. Piping plover is listed as federally endangered in the Great Lakes Region, and as federally threatened in the Atlantic Coastal Region.
3. Osprey was observed flying over the installation.
4. Eastern box turtle observation might have been misidentification.
5. The eastern prairie fringed orchid was previously listed by the USFWS as federally threatened in New York in 2009; however, according to the 2010 species profile, the species is not known to occur in New York State (USFWS 2010b). The eastern prairie fringed orchid was removed from the 2010 USFWS threatened and endangered species list for New York State (USFWS 2010a), although it is still a federally listed species.

Key:

E = Endangered SH = State Historical D = Delisted
T = Threatened NL = Not Listed SC = Special Concern Species

Short-eared owl. The short-eared owl is state-listed as endangered. The short-eared owl is most often found in inland or coastal marshes, meadows, old fields, pastures, and airports. Breeding habitats include moorlands, marshlands, bogs, and forested areas that have been cleared. The species prefers open habitat with substantial areas for suitable resting and nesting cover. Additional habitat requirements include nearby areas with high productivity of small mammals. Upland sites with vegetation (e.g., grasses, sedges, and forbs) less than 1.6 feet (0.5 meters) high is preferred for nesting. Mean territory size has been found to be approximately 136 acres (Niagara Falls ARS 1999b).

Six short-eared owls were observed on 12 March 1998 in the riparian shrub area of Cayuga Creek in the western portion of the installation, south of the runway, which includes a mixture of emergent wetland and dense shrub layer habitats. These were the only sightings of this species during this survey effort; however, additional unconfirmed sightings occurred in February 1999 on the north side of the runway (Niagara Falls ARS 1999b). It is suggested that the short-eared owl uses Niagara Falls ARS and adjacent lands for overwintering or migratory stopover habitat (Niagara Falls ARS 2001c). Habitat along the runways in the southern half of the installation, which includes upland successional field with several areas of emergent wetland, was described as consistent with short-eared owl preferred habitat. The project sites for the Proposed Action are not proposed in the eligible habitat areas described by USFWS (Niagara Falls ARS 1999b).

Horned lark. The horned lark, state-listed as a special concern species, prefers open areas and disturbed grasslands with short grass heights. They are specific to barren land such as plowed fields and overgrazed pastures and place their nests in shallow depressions scratched out of bare earth (Niagara Falls ARS 2001c). A few horned larks were heard early in the survey season (late May) in the grasslands at the far eastern end of the installation, north of Runway 28 and east of Taxiway A3. It was assumed that these birds were migrating through the area at the time of the survey and were using the fields to forage. However, these birds begin breeding in March and the young will fledge by May. It is possible that horned lark nested at the Niagara Falls ARS and that nests were overlooked due to the late May start of the survey (Niagara Falls ARS 2009f). The 2001 USFWS inventory report concluded that limited sightings indicate infrequent, transient use by the species (Niagara Falls ARS 2001c).

Upland sandpiper. The upland sandpiper is state-listed as threatened. Upland sandpipers are grassland species that prefer low to moderate grass heights. An upland sandpiper was thought to be observed on 28 April 1998. Although this species could not be confirmed during this survey effort, several sightings occurred during the 2000 breeding season while other survey work was being conducted. During the 2000 breeding season, upland sandpipers were observed south of proposed Project 10 (Fill-in Ramp South of Hangar 707) in the airfield in survey plots 8 and 9 (Niagara Falls ARS 2001c). On one occurrence, observations were made of two adults that were displaying territorial behavior and one fledgling. No nest was found; however, repeated sightings during the breeding season suggest breeding activity occurs on Niagara Falls ARS (Niagara Falls ARS 2001c).

American bittern. The American bittern is a wetland species that is state-listed as a special concern. A single sighting was documented on 27 April 1999 in Cayuga Creek. This limited sighting indicates infrequent, transient use by this species (Niagara Falls ARS 2001c).

Least bittern. The least bittern, which is state-listed as threatened, was not found during USFWS surveys but has been identified on the installation in previous studies conducted by USFWS in 2001 and 2006. The least bittern nests exclusively in wetland habitats (Niagara Falls ARS 2009f).

Migratory birds are protected under the Migratory Bird Treaty Act of 1918 and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (see **Appendix B**). All of the native bird species observed on Niagara Falls ARS and listed in **Table 3-6** are migratory birds protected under the Migratory Bird Treaty Act. Niagara Falls ARS is within the Atlantic Migratory Bird Flyway. The

Niagara River, approximately 4 miles west and 1.5 miles south of the installation, is believed to be an extremely important migratory corridor for waterfowl and land birds (Niagara Falls ARS 2009e).

Critical Habitat

There is no USFWS-designated critical habitat within Niagara Falls ARS.

3.7 Socioeconomics and Environmental Justice

3.7.1 Definition of the Resource

Socioeconomics. Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Factors that describe the socioeconomic environment represent a composite of several interrelated and nonrelated factors. There are several factors that can be used as indicators of economic conditions for a geographic area, such as median household income, employment and unemployment rates, percentage of residents living below the poverty level, and employment by business sector. Data on employment can identify gross numbers of employees, employment by industry or trade and unemployment trends. Data on household income in a region can be used to compare the before and after effects of any jobs created or lost as a result of a proposed action. Data on industrial, commercial, and other sectors of the economy provide baseline information about the economic health of a region.

Environmental Justice. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued on February 11, 1994, by President Clinton. EO 12898 pertains to environmental justice issues and relates to various socioeconomic groups and the health effects that could be imposed on them. This EO requires that Federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The EO was created to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action.

3.7.2 Affected Environment

For this Proposed Action, the socioeconomic and environmental justice baseline conditions are presented using four spatial levels: (1) city level data (i.e., the City of Niagara Falls), (2) county-level data for Niagara County, (3) state-level data for the State of New York, and (4) national-level data for the United States. The city-level data are included to provide baseline conditions for locales close to the Proposed Action. County-level data are included in the analysis, as this is a larger scale for where socioeconomic and environmental justice impacts could occur. Data for New York and the United States are included to provide additional levels for comparison. For the environmental justice analysis, data from the surrounding Census Block Groups will be analyzed to provide an additional level of analysis of the areas immediately around Niagara Falls ARS. The block groups analyzed are Census Tract 225–Block Group 1; Census Tract 225–Block Group 2; Census Tract 226.02–Block Group 6; Census Tract 226.02–Block Group 9; Census Tract 227.11–Block Group 1; Census Tract 227.11–Block Group 2; and Census Tract 227.12–Block Group 8. **Figure 3-2** displays the Block Groups/Census Tracts analyzed.

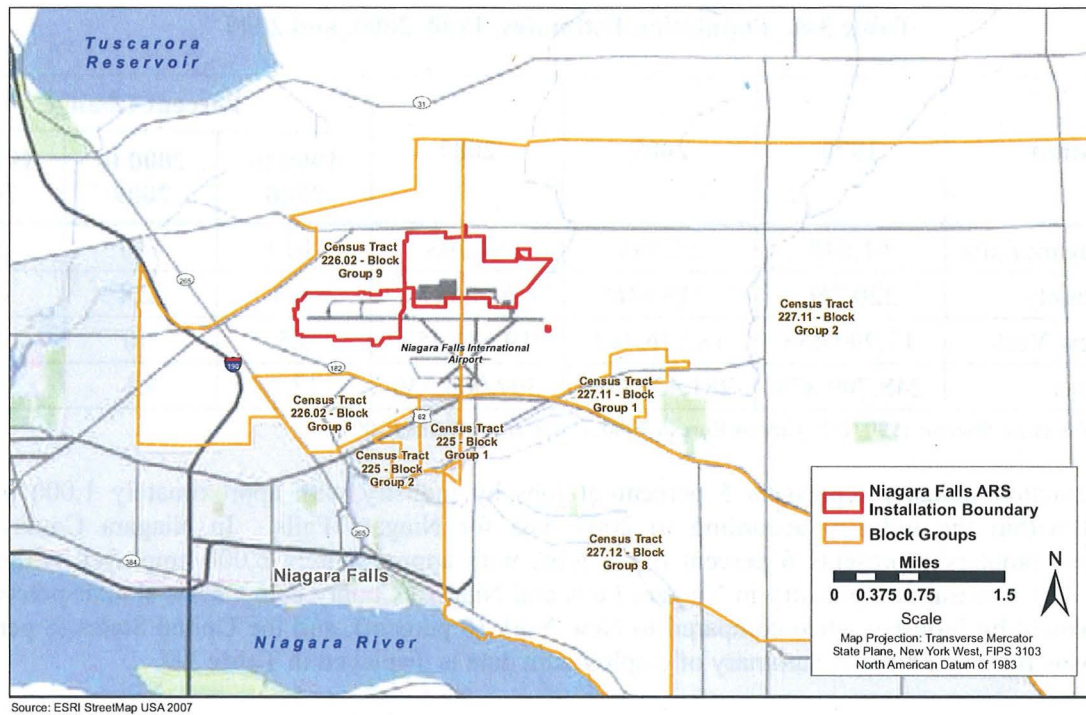


Figure 3-2. Census Block Groups in the Vicinity of Niagara Falls ARS

Demographic Characteristics. Demographics for the aforementioned areas were examined for trends in population from 1990 to 2009. The population of the City of Niagara Falls decreased from 61,840 in 1990 to 51,295 persons in 2009, representing a 21 percent decrease in population. Similarly the population of Niagara County declined 3 percent from 1990 to 2009, when the population fell from 220,756 to 214,557 persons. In New York State, population grew 8 percent over the 19-year span ending in 2009. These rates of growth were much less compared to the United States, which grew approximately 19 percent from 1990 to 2009 (U.S. Census Bureau 1990, U.S. Census Bureau 2009). Complete population data, including the number of persons living in each geographic area, are presented in **Table 3-8**.

Employment Characteristics. The percentage of the population that is employed within the armed forces in Niagara Falls and Niagara County is 0.1 percent. Both locations contain a smaller percentage of persons employed within the armed forces when compared to New York and the United States, which are 0.2 percent and 0.5 percent, respectively. The largest industry across all areas examined is the educational, health, and social services industry. The second largest industry in the City of Niagara is the arts, entertainment, recreation, accommodation and food services industry followed by the manufacturing industry. In Niagara County, the second largest industry is the manufacturing industry. The second largest industry in New York is the professional, scientific, management, administrative, and waste management services. The retail trade industry is the third largest industry in Niagara County and in New York and the second largest industry in the United States.

Table 3-8. Population Estimates, 1990, 2000, and 2009

Location	1990	2000	2009	Percent Change		
				1990 to 2000	2000 to 2009	1990 to 2009
City of Niagara Falls	61,840	55,593	51,295	-10.1	-7.7	-20.6
Niagara County	220,756	219,846	214,557	-0.4	-2.4	-2.9
State of New York	17,990,455	18,976,457	19,541,453	5.5	3.0	7.8
United States	248,709,873	281,421,906	307,006,550	13.2	9.1	19.0

Sources: U.S. Census Bureau 1990, U.S. Census Bureau 2000, U.S. Census Bureau 2009

The construction industry represents 5 percent of jobs by industry with approximately 1,000 people employed within the industry according to 2008 data for Niagara Falls. In Niagara County, the construction industry represents 6 percent of all jobs, with approximately 6,000 employed within the industry. The construction industry in Niagara Falls and Niagara County composes a similar percentage of employment by industry when compared to New York (6 percent), and the United States (8 percent) (U.S. Census Bureau 2008). A summary of employment data is displayed in **Table 3-9**.

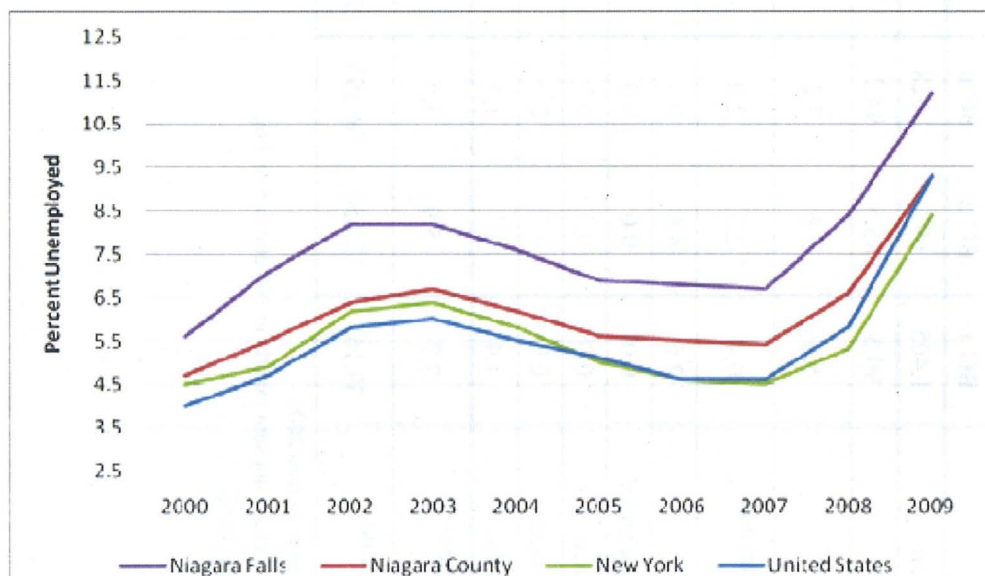
Figure 3-3 displays the annual unemployment rate for the City of Niagara Falls, Niagara County, New York, and the United States from 2000 to 2009. The unemployment rate in Niagara Falls was approximately 2 percent greater than the United States unemployment rate from 2000 to 2009. Unemployment in Niagara County and New York followed a similar trend to the United States. The lowest unemployment rates occurred in 2000 with 5.6 percent unemployed in Niagara Falls, 4.7 percent unemployed in Niagara County, 4.5 percent unemployed in New York, and 4.0 percent unemployed in United States. The unemployment rate was 11.2 percent in Niagara Falls, 9.3 percent in Niagara County, and 8.4 percent in New York in 2009, compared to the United States' unemployment level of 9.3 percent (BLS 2010).

Environmental Justice. Race, ethnicity, and poverty characteristics are displayed in **Table 3-10**. The nearby Block Groups surrounding Niagara Falls ARS contain a predominately white population ranging from 89 percent to 100 percent, compared to 76 percent in Niagara Falls and 91 percent in Niagara County. The median household income ranged from \$30,000 to \$60,545 in the Block Groups analyzed, which was higher compared to the \$26,800 median household income for Niagara Falls. Census Tract 226.02–Block Group 9 was the only Block Group that contained a median household income that was less than the median household income for Niagara County, at \$38,136. The percentage of families living in poverty was 16 percent in Census Tract 225–Block Group 2 and 18 percent in Census Tract 226.02–Block Group 9, both of which are greater than the 11 percent of families in Niagara County living below the poverty level (U.S. Census Bureau 2000).

Table 3-9. Overview of Employment by Industry, 2008

Industry	City of Niagara Falls	Niagara County	State of New York	United States
Population 16 years and over in labor force	39,077	174,064	15,525,409	236,078,754
Percent of population employed within the armed forces	0.1%	0.1%	0.2%	0.5%
Agriculture, forestry, fishing and hunting, and mining	0.1%	1.0%	0.6%	1.8%
Construction	4.5%	5.6%	6.1%	7.7%
Manufacturing	14.7%	15.4%	7.5%	11.3%
Wholesale trade	1.9%	2.4%	3.0%	3.2%
Retail trade	14.2%	12.3%	10.6%	11.5%
Transportation and warehousing, and utilities	5.3%	5.5%	5.4%	5.1%
Information	2.0%	1.6%	3.3%	2.5%
Finance, insurance, real estate, and rental and leasing	3.4%	5.3%	8.7%	7.1%
Professional, scientific, management, administrative, and waste management services	8.5%	8.8%	10.8%	10.3%
Educational, health and social services	22.0%	24.0%	25.8%	21.3%
Arts, entertainment, recreation, accommodation and food services	15.3%	9.6%	8.5%	8.7%
Other services (except public administration)	4.8%	4.5%	5.0%	4.8%
Public administration	3.1%	3.9%	4.8%	4.7%

Source: U.S. Census Bureau 2008



Source: BLS 2010

Figure 3-3. Unemployment, 2000 to 2009

Table 3-10. Race, Ethnicity, and Poverty Characteristics by Percent, 2000

Ethnicity	Census Tract 225 BG 1	Census Tract 225 BG 2	Census Tract 226.02 BG 6	Census Tract 226.02 BG9	Census Tract 227.11 BG 1	Census Tract 227.11 BG 2	Census Tract 227.12 BG 8	Niagara Falls	Niagara County	New York	United States
Total Population	1,405	697	2,028	1,890	787	6,321	6,978	51,295	214,557	19,541,453	307,006,550
White	90.5	88.5	94.2	89.8	99.4	97.8	96.9	76.2	90.7	67.9	75.1
Black or African American	5.6	3.6	2.2	5.1	0.0	0.7	1.3	18.7	6.1	15.9	12.3
American Indian and Alaska Native	0.4	2.3	2.0	0.8	0.4	0.4	0.5	1.6	0.9	0.4	0.9
Asian	2.6	4.6	0.3	1.5	0.0	0.5	0.5	0.7	0.6	5.5	3.6
Native Pacific Islander	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Some Other Race	0.0	0.3	0.3	0.2	0.0	0.1	0.1	0.7	0.4	7.1	5.5
Two or More Races	0.9	0.7	0.9	2.5	0.1	0.4	0.7	2.0	1.2	3.1	2.4
Hispanic or Latino	1.4	0.3	1.4	1.2	1.1	0.6	0.5	2.0	1.3	15.1	12.5
Households below poverty level	7.7	15.9	3.5	17.8	1.3	3.9	4.7	19.5	10.6	14.6	12.4
Median Household Income	39,167	37,656	36,193	29,929	47,500	60,545	47,552	26,800	\$38.136	\$43.393	\$41,994

Source: U.S. Census Bureau 2000

Note: Percentages might not sum exactly to 100 due to rounding.

Key: BG = Block Group

3.8 Infrastructure

3.8.1 Definition of the Resource

Infrastructure consists of the physical structures and systems that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as urban or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to the economic growth of an area. The infrastructure information contained in this section provides a brief overview of each infrastructure component and comments on its existing general condition.

Solid waste management primarily deals with the availability of landfills to support a population's residential, commercial, and industrial needs. Alternative means of waste disposal might involve waste-to-energy programs or incineration. In some localities, landfills are designed specifically for, and are limited to, disposal of construction and demolition debris. Recycling programs for various waste categories (e.g., glass, metals, and papers) reduces reliance on landfills for disposal.

3.8.2 Affected Environment

Water Supply. The primary source from which Niagara Falls ARS obtains its potable water is from the City of Niagara Falls, with the Town of Wheatfield serving as a secondary source. Water acquired from the Niagara Falls system is metered and delivered via one 10-inch main. The water supply is delivered to the installation distribution system through 10- to 12-inch mains (Niagara Falls ARS 1998a). The average water pressure supplied is 60 pounds per square inch.

There are no active potable water wells on Niagara Falls ARS. Potable water consumption at Niagara Falls ARS averages approximately 1.72 million gallons per month (Niagara Falls ARS 1998a). The installation does not provide any additional treatment to the potable water supply prior to consumption. This system meets all USEPA potable water standards. There are no reported problems of potable water quality.

Distribution of water occurs via water mains and service laterals ranging in pipe size and pipe material. Water main pipes range in size from 10 to 12 inches and are composed primarily of asbestos cement. Lateral lines range in size from 1.25 to 8 inches and consist of predominantly galvanized iron or copper pipe. The water supply system on Niagara Falls ARS was constructed approximately 50 years ago. The 107 AW side of the installation has new lines and valves. Service laterals range in age from 2 to 50 years old and are generally of a similar age as the building to which they are connected (Niagara Falls ARS 1998a).

The potable water system is also used for fire protection and suppression. Fire suppression capability is supplemented by a 150,000-gallon ground-level reservoir and three diesel pumps in Building 828. This reservoir supports fire suppression for four aircraft maintenance hangars used by the 914 AW and the 107 AW. Fire hydrants are provided at regular intervals on the potable water distribution system (Niagara Falls ARS 1998a).

Niagara Falls ARS has performed potable water chlorination tests and has determined that chlorination levels are moderately low, probably due to their location at the end of the distribution system. Bioenvironmental Engineering periodically conducts complete water sampling tests to ensure that high-quality potable water is continuously supplied. Deficient water lines are replaced as necessary, and system expansion occurs concurrent with new construction.

Sanitary Systems. On Niagara Falls ARS wastewater is disposed of through Niagara County Sewer District's No. 1 sanitary sewer lines and sewage treatment facility. Niagara Falls ARS's wastewater is transported off-installation via one 8-inch force main. All wastewater is delivered to the District's wastewater treatment plant, where it is treated and discharged. Niagara Falls ARS does not use septic systems for the treatment and disposal of wastewater. Industrial wastes are treated through oil/water separators and grease traps, which subsequently discharge directly to the sanitary sewer system for additional treatment.

The collection system on Niagara Falls ARS consists of gravity flow pipes and force mains of various construction materials, including vitrified clay and polyvinyl chloride (PVC). The system was originally installed in the 1950s, and the age of lines varies with the area of the installation. The system consists predominately of gravity flow mains. There are two lift stations on the installation (Buildings 815 and 731), which host one force main each.

The Niagara Falls Sewer District's sanitary sewer collection system and sewage treatment plant are adequate to meet the wastewater treatment requirements of Niagara Falls ARS.

Natural Gas. National Fuel Gas Company is the natural gas provider for Niagara Falls ARS. National Fuel Gas Company purveys natural gas to the installation via one 6-inch PVC plastic line. To meet the needs of Niagara Falls ARS, the pressure of the gas is reduced to 5 pounds per square inch. Distribution main lines in the system vary between steel and PVC composition, although PVC is the primary construction material. Gas lines vary in size up to 8 inches. The natural gas distribution system is looped on the 914 AW side of the installation. The valves have service valves, which make the looped system less effective. Niagara Falls ARS assumes maintenance responsibility for any line that is 2 inches or less or is within 5 feet of a building. There is no storage facility for natural gas on the installation (Niagara Falls ARS 1998a).

Natural gas is the primary heating source for facilities on Niagara Falls ARS. Natural gas supplies both heating plants in addition to fueling natural gas-fired furnaces for steam boilers and radiant heat systems within individual facilities. The highest consumption rates are recorded during the winter months.

National Fuel Gas Company provides uninterrupted service to the installation, and utility personnel indicate that historically there have been no capacity or supply hindrances (Niagara Falls ARS 1998a). The gas supply system is sufficient for current needs and requirements.

Central Heating. At Niagara Falls ARS, there is only one localized heating system. Currently, the installation has only one building (Building 506) with the capacity to serve immediately adjacent buildings. Building 506 supplies steam heat to Buildings 502, 504, and 508. Other buildings on the Niagara Falls ARS have space heaters.

Electricity. The Niagara Mohawk Power Corporation (Niagara Mohawk) is the purveyor of electricity for Niagara Falls ARS. Niagara Mohawk owns and maintains all off-installation equipment. Niagara Falls ARS owns and maintains the system once it crosses into the installation boundary. The electrical system was upgraded in 1997 from 4.8 kilovolts (kV) to 13.2 kV, and replacement and demolition of the old overhead system was completed. The new system was designed with multiple feeders with switching options for interconnections. Existing loads were balanced among feeders and between phases. Mission-critical facilities are equipped with emergency generators in the event of unplanned commercial power outages.

Niagara Mohawk supplies electrical power to Niagara Falls ARS through two incoming electrical supply lines. The looped system consists of aboveground mounted power lines and copper laterals. The

107 AW and the 914 AW electrical distribution systems are separated by a switch that is maintained by Niagara Mohawk for the safety of those off-installations on the same circuit.

Communication Systems. The 914 AW Communications Flight operates and maintains communications systems and equipment at Niagara Falls ARS to meet mission requirements. The communications system consists of fiber optic cable between buildings and twisted pair copper cable for in-building connectivity. Intra-installation and inter-installation communication infrastructure exists above and below ground. This infrastructure includes fiber optic local area network, fire closed-circuit television, police closed-circuit television, telephone, and cable television. Approximately 38 buildings on Niagara Falls ARS are connected to the fiber optic network.

Transportation Network. Vehicular access to Niagara Falls ARS is provided at three points. The Main Gate, supporting the highest traffic volume, is off Lockport Road. Two alternate access points are provided at the eastern and western perimeters of the installation. Access to the installation is provided by the arterial Lockport Road. The three collector roads, Tuscarora Road, Ent Avenue, and Walmore Road extend from Lockport Road. Ent Avenue is the main entrance to the installation and experiences the highest traffic volumes. Once inside the installation, primary roads provide circulation.

Pollution Prevention. AFI 32-7080, *Pollution Prevention Program*, implements the regulatory mandates in the Emergency Planning and Community Right-to-Know Act, Pollution Prevention Act of 1990; EO 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements*; EO 12873, *Federal Acquisition, Recycling, and Waste Prevention*; and EO 12902, *Energy Efficiency and Water Conservation at Federal Facilities*. AFI 32-7080 prescribes the establishment of Pollution Prevention Management Plans. The 914 AW fulfills this requirement with the following plans:

- Storm Water Pollution Prevention Plan (Niagara Falls ARS 2009c)
- Hazardous Waste Management Plan (Niagara Falls ARS 2002a)
- Hazardous Material Emergency Planning and Response Plan (Niagara Falls ARS 2008)
- Solid Waste Management Plan (Niagara Falls ARS 2002b).

These plans ensure that Niagara Falls ARS maintains a waste reduction program and meets the requirements of the CWA; the NPDES permit program; and Federal, state, and local requirements for spill prevention control and countermeasures.

Solid Waste. EO 13423 sets a goal that requires Federal agencies to ensure that they reduce the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of; increase diversion of solid waste, as appropriate; and maintain cost-effective waste prevention and recycling programs at their facilities. Additionally, in *Federal Register* Volume 58 Number 18 (January 29, 1993), CEQ provides guidance to Federal agencies on how to “incorporate pollution prevention principles, techniques, and mechanisms into their planning and decisionmaking processes and to evaluate and report those efforts, as appropriate, in documents pursuant to NEPA.” USAF policy on solid waste is to achieve the maximum possible economically viable nonhazardous solid waste diversion rate (USAF 1999). The goal is to obtain stepped diversion rates of at least 42 percent by 2011; the solid waste diversion rate increases by 2 percent every year until reaching 50 percent in 2015. Construction and demolition debris diversion rates are 52 percent in 2011, increasing 2 percent every year until reaching 60 percent in 2015. Wastes disposed of in the solid waste stream at Niagara Falls ARS are expected to consist only of those materials that cannot be effectively recycled. This commonly includes paper towels and other sanitary wastes, food-soiled wrappings and packaging, most food wastes, plastic bags and wrappings, nonrecyclable construction and demolition wastes, and other miscellaneous nonrecyclable materials from administrative, industrial, food-service, and retail operations.

Modern Disposal Services, Inc., handles collection, transportation, and disposal of refuse at Niagara Falls ARS. The installation's refuse is collected in several 6-cubic-yard dumpsters and two 34-cubic-yard compactors. Construction debris is collected in a 30-cubic-yard roll-off. This refuse and construction debris is disposed of in a nearby permitted landfill off-installation. Cardboard, paper, and scrap metal are collected and recycled off-installation. Niagara Falls ARS does not have an on-installation solid waste.

Construction and demolition waste and nonrecurring municipal solid waste (MSW) generated under contract are the responsibility of the contractor. Construction and demolition waste and nonrecurring MSW generated under contract or by installation personnel are recycled to the greatest extent possible. Contractors are required to report the quantities of recycled construction and demolition waste (Niagara Falls ARS 1998a).

3.9 Hazardous Materials and Waste

3.9.1 Definition of the Resource

A hazardous substance, pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. Section 9601(14)), is defined as follows: "(A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33; (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title; (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Resource Conservation and Recovery Act (RCRA) of 1976, as amended, (42 U.S.C. Section 6921); (D) any toxic pollutant listed under section 1317(a) of Title 33; (E) any HAP listed under section 112 of the CAA (42 U.S.C. Section 7412); and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator of the USEPA has taken action pursuant to section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)."

Hazardous materials are defined by 49 CFR 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions" in 49 CFR Part 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR Parts 105–180.

RCRA defines a hazardous waste in 42 U.S.C. Section 6903, as "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

3.9.2 Affected Environment

Hazardous Materials and Petroleum Products. AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards governing procurement, issuance, use, or disposal of hazardous materials and tracking and record-keeping for public safety and for compliance with all laws and regulations. AFI 32-7080, *Pollution Prevention Program*, incorporates the requirements of all Federal regulations, AFIs, and DOD Directives for the reduction of hazardous material uses and purchases. The primary hazardous materials addressed by AFI 32-7080 are O₃-depleting substances and the 17 chemicals listed under the USEPA Industrial Toxics Program. EO 12088, Federal Compliance with Pollution Control Standards, ensures that necessary actions are taken for the prevention, management, and

abatement of environmental pollution from hazardous materials or hazardous waste due to Federal facility activities. The 914 AW maintains a Hazardous Materials Emergency Planning and Response Plan (Niagara Falls ARS 2008) that addresses storage and management of hazardous materials at Niagara Falls ARS. The 914 AW has established a hazardous materials pharmacy (HAZMART) in accordance with AFI 32-7086 (Niagara Falls ARS 2002c). The HAZMART ensures that only the smallest quantities of hazardous materials necessary to accomplish the mission are purchased and used. Hazardous and toxic material procurements at the Niagara Falls ARS are approved and tracked by the 914 AW Commander. The Environmental Management Office at Niagara Falls ARS supports and monitors environmental permits, hazardous material storage, and spill prevention and response.

Hazardous materials are used at Niagara Falls ARS for cleaning, maintenance, and repair of aircraft, vehicles, and facilities. Examples include motor oil, gasoline, jet fuels, coolants, hydraulic fluids, paints, paint thinners, strippers, and degreasing agents. Hazardous materials are either stored in properly designated storerooms or at the HAZMART in Building 207 (Niagara Falls ARS 1998a).

Hazardous and Petroleum Wastes. AFI 32-7042, *Solid and Hazardous Waste Compliance*, directs roles and responsibilities with waste stream management including planning, training, emergency response, and pollution prevention. The management of hazardous waste is governed by the RCRA Subtitle C (40 CFR Parts 260 through 270) regulations, which are administered by the USEPA. Hazardous waste generated at Niagara Falls ARS is managed in accordance with USEPA, New York State, and USAF regulatory requirements. The 914 AW maintains a Hazardous Waste Management Plan (Niagara Falls ARS 2002c), as directed by AFI 32-7042. The plan prescribes the roles and responsibilities of all members of Niagara Falls ARS with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes the procedures to comply with applicable Federal, state, and local standards for solid waste and hazardous waste management.

Niagara Falls ARS is considered a large-quantity generator of hazardous wastes. A large-quantity generator produces more than 2,200 pounds of hazardous waste per month or more than 2.2 pounds of acute hazardous waste per month (USEPA 2010a). Processes generating hazardous wastes on Niagara Falls ARS include aircraft and vehicle maintenance, parts cleaning, support equipment maintenance, general facility maintenance, painting, nondestructive inspection, and weapons training and cleaning (Niagara Falls ARS 2008). Hazardous wastes are generated and accumulated at satellite accumulation points (SAPs) at Niagara Falls ARS. A SAP is an area at or near the point of waste generation where small quantities of "total regulated hazardous waste" up to 55 gallons or up to 1 quart of "acutely hazardous waste" are accumulated. Once the SAP reaches these limits, the waste is transported to the 90-Day Hazardous Waste Central Storage Area in Building 830, where it is kept for up to 90 days before it is transported off-installation for proper disposal. Typical types of hazardous wastes kept at the 90-Day Hazardous Waste Central Storage Area include T-56 compressor wash, antifreeze, paint, paint thinner, bead blast media, filters, and solvents (Niagara Falls ARS 2008). Niagara Falls ARS uses the DOD-operated Defense Reutilization and Marketing Office (DRMO) in Portsmouth, New Hampshire, or Mechanicsburg, Pennsylvania, for transfer of the majority of its hazardous waste to a permitted treatment, storage, or disposal facility (Niagara Falls ARS 2008).

An SAP can also accumulate nonhazardous waste and universal wastes. Regulatory accumulation limits are not imposed on nonhazardous wastes; however, there are accumulation time limits for universal waste. Universal waste generators are allowed to accumulate universal waste at their location for no more than 9 months from the accumulation start date. Once the 9-month time limit has been reached, the universal waste must be moved to its designated waste accumulation site. In New York, universal wastes include the following (NYSDEC 2010e):

- Batteries, including nickel-cadmium, lithium- or mercury-containing batteries, and lead-acid batteries
- Pesticides, including those that have been recalled or banned from use, obsolete pesticides, damaged pesticides, and those that are no longer needed
- Mercury-containing devices, including thermostats, switches, and other items where mercury is contained in a capsule or other container and the mercury is used to transmit pressure, temperature, or electricity
- Lamps, including fluorescent tubes, high-intensity discharge lamps, neon mercury vapor, high-pressure sodium, and metal halide lamps.

The 90-Day Hazardous Waste Central Storage Area in Building 830 and the SAPs are all inspected weekly (Niagara Falls ARS 2008).

Lead-Based Paint. Lead was commonly used in house paint until the Federal government banned the use of most lead-based paint (LBP) in 1978. Therefore, it is assumed that all structures constructed prior to 1978 could contain LBP. Paint chips that fall from the exterior of buildings can potentially contaminate the soil if the paint contains lead. The USEPA has established recommendations for maximum lead soil contamination levels. No action is required if the lead concentration is less than 400 parts per million (ppm) in areas expected to be used by children, or less than 2,000 ppm in areas where contact by children is less likely. Soil abatement and public notice are recommended when lead levels exceed 5,000 ppm.

USAF policy and guidance establishes LBP management at USAF facilities. The policy incorporates by reference the requirements of 29 CFR 1910.120, 29 CFR Part 1926, 40 CFR 50.12, 40 CFR Parts 240 through 280, the CAA, and other applicable Federal regulations. In addition, the policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating LBP hazards. The Residential Lead-Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X), passed by Congress on 28 October 1992, regulates the use and disposal of LBP at Federal facilities. Federal agencies are required to comply with applicable Federal, state, and local laws relating to LBP activities and hazards. Niagara Falls ARS maintains a Lead-Based Paint Management Plan that was last updated in 2001 (Niagara Falls ARS 2001a).

Asbestos-Containing Materials. AFI 32-1052, *Facilities Asbestos Management*, provides the direction for asbestos management at USAF installations. This instruction incorporates by reference applicable requirements of 29 CFR Part 669 et seq., 29 CFR 1910.1025, 29 CFR 1926.58, 40 CFR 61.3.80, Section 112 of the CAA, and other applicable AFIs and DOD Directives. AFI 32-1052 requires installations to develop an asbestos management plan for the purpose of maintaining a permanent record of the status and condition of asbestos-containing material (ACM) in installation facilities and documenting asbestos management efforts. In addition, the instruction requires installations to develop an asbestos operating plan detailing how the installation accomplishes asbestos-related projects.

Asbestos is regulated by USEPA under the CAA; Toxic Substances Control Act; CERCLA; and Century Code 23, Health and Safety Chapter 25 Air Pollution Control, with the authority promulgated under OSHA. Identification of ACM in installation facilities is governed by OSHA under the authority of the Occupational Safety and Health Act, 29 U.S.C. Section 669 et seq. Section 112 of the CAA regulates emissions of asbestos fibers to ambient air. Building materials in older buildings are assumed to contain asbestos. It exists in a variety of forms and can be found in floor tiles, floor tile mastic, roofing materials, joint compound used between two pieces of wallboard, some wallboard thermal system insulation, and boiler gaskets. If asbestos is disturbed, fibers can become friable. Common sense measures, such as avoiding damage to walls and pipe insulation, will help keep the fibers from becoming airborne. Friable

ACM is any material containing more than 1 percent asbestos, and that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable ACM is any ACM that does not meet the criteria for friable ACM. USEPA policy is to leave asbestos in place if disturbance or removal could pose a health threat.

Niagara Falls ARS maintains an Asbestos Management Program Plan that was last updated in 2001 (Niagara Falls ARS 2001b). The plan specifies procedures for the removal, encapsulation, enclosure, and repair activities associated with ACM-abatement projects. The plan is designed to ensure that personnel who live and work on the installation are protected from exposure to airborne asbestos fibers and ensure that the installation remains in compliance with Federal, state, and local regulations pertaining to asbestos. In 1993, the Air National Guard Readiness Center, Civil Engineering Technical Service Center's Asbestos Management Team surveyed 31 buildings at Niagara Falls ARS for ACM. Results of the survey revealed the presence of ACM in some buildings (Niagara Falls ARS 2001b). Materials that could contain asbestos include pipe insulation and floor tiles. Asbestos materials are removed on an as-needed basis to minimize health risks from release of asbestos fibers during normal activities, maintenance, renovation, or demolition.

Polychlorinated Biphenyls. Polychlorinated biphenyls (PCBs) are a group of chemical mixtures used as insulators in electrical equipment such as transformers and fluorescent light ballasts. Federal regulations govern items containing 50 to 499 ppm PCBs. Chemicals classified as PCBs were widely manufactured and used in the United States throughout the 1950s and 1960s. PCB-containing oil is typically found in older electrical transformers and light fixtures (ballasts). Transformers containing greater than 500 ppm PCBs, between 50 and 500 ppm PCBs, and less than 50 ppm PCB are considered PCB, PCB-contaminated, and non-PCB, respectively.

The fluorescent light ballasts in the buildings and pad-mounted transformers near buildings proposed for demolition might contain PCBs. Other items that might contain PCBs include capacitors and surge protectors. Any pad-mounted transformers outside the buildings would be tested for PCBs prior to altering the utility and treated in accordance with Federal, state, and USAF regulations.

Installation Restoration Program. The USAF's IRP requires each installation to identify, investigate, and clean up hazardous waste disposal or release sites. The IRP is a subcomponent of the Defense Environmental Restoration Program that became law under the Superfund Amendments and Reauthorization Act. To date, a total of 14 IRP sites have been identified at Niagara Falls ARS (Niagara Falls ARS 2002d). Previous environmental monitoring results at seven of these areas have shown that no residual contamination remains that poses unacceptable risk to environmental or human receptors. These former IRP sites have been closed with the concurrence of the state. Seven active IRP sites remain: a JP-4 pipeline (Site 1) that leaked fuel east of Building 600, an active landfill (Site 3) in the northeastern area of the installation, the former Boeing and Michigan Aeronautical Research Center missile site (Site 5), JP-4 tank truck spill (Site 7) at the eastern end of Taxiway A, Building 202 Drum Storage Yard (Site 8) at the northern portion of the installation, the former Fire Training Area No. 1 (Site 10) near the eastern end of Runway 10L-28R and south of Building 731, and a former UST (Site 13) near the southeastern corner of Building 904.

Table 3-11 presents a summary of the IRP sites at Niagara Falls ARS and **Figure 3-4** presents the location of the sites. Only one IRP site, Site 13, is within the boundaries of any of the project sites associated with the Proposed Action. IRP Site 13 is within the boundaries of Project 2 (C-130 Flighline Operations Facility). IRP Site 4 is adjacent to Project 7a.

Table 3-11. Installation Restoration Program Sites on Niagara Falls ARS

IRP Site (Site ID Number)	Name	Dates of Operation	Material Disposed	Contaminant	Status
1 (ST-11)	JP-4 Pipeline Leak (Building 600)	1969	JP-4	TRPH in soil, groundwater, and surface water/sediment	NFRAP
2 (ST-13)	POL Bulk JP- 4 Tank C Leak	1982	JP-4	TRPH in soil and groundwater	NFRAP
3 (LF-08)	Landfill	1952–1969	Construction rubble, coal ash, waste oil, shop wastes, batteries, electrical and car parts, and drums	Metals in soil, groundwater, and surface water/sediment	One groundwater pumping well and a recovery trench in place, as of 1999
4 (ST-09)	Base Exchange Gas Station Motor Gasoline Tank Leak	1981	Gasoline	TRPH and metals in soil, groundwater, and surface water/sediment	NFRAP
5 (SS-04)	NYANG Hazardous Waste Drum Storage Yard	1978–1983	Drummed hazardous waste including solvents, paints, and oils	Metals in soil and groundwater	LTM
6 (ST-12)	POL Bulk JP- 4 Tank A Leak	1979	JP-4	TRPH in soil and groundwater	NFRAP
7 (SS-14)	JP-4 Tank Truck Spill	1983	JP-4	TRPH in soil and groundwater	LTM
8 (SS-02)	Drum Storage Yard	1978–1983	Drummed hazardous waste including solvents, paints, and oils	Metals in soil, groundwater, and surface water/sediment	LTM
9 (FT-07)	Fire Training Area No. 3	1963–1983	Waste fuels, oils, solvents, and hydraulic fluid	Metals in soil, groundwater, and surface water/sediment	NFRAP
10 (FT-05)	Fire Training Area No. 1	1955–1963	Waste fuels, oils, solvents, and hydraulic fluid	Metals in soil and groundwater	Two groundwater pumping wells and a recovery trench in place as of 1998
11 (FT-06)	Fire Training Area No. 2	One year in the late 1950s	Waste JP-4	Metals in soil	NFRAP
12 (SS-03)	Drum Storage Yard	1950s–early 1960s	Drummed hazardous waste including solvents, paints, and battery acid oils	Metals in soil, groundwater, and surface water/sediment	NFRAP

IRP Site (Site ID Number)	Name	Dates of Operation	Material Disposed	Contaminant	Status
13 (ST-10)	UST Pit	1971–1987	General ship waste including waste oils, solvents, and automotive fluids	TRPH and metals in soil, groundwater, and surface water/sediment	Two groundwater pumping wells in place as of 1998
“Old IRP Site 13” (SS-01)	AFRC Hazardous Waste Drum Storage Yard	1979–1983	Drummed hazardous waste including solvents, paints, and battery acid oils	N/A	NFRAP

Source: Niagara Falls ARS 2002d

Key:

HRC = hydrogen releasing compound

ICM = Interim Corrective Measures

JP-4 = Jet Propellant-4

LTM = Long-term Monitoring

N/A = Not Available

NFRAP = No Further Remedial Action Planned

POL = Petroleum, Oils, and Lubricants

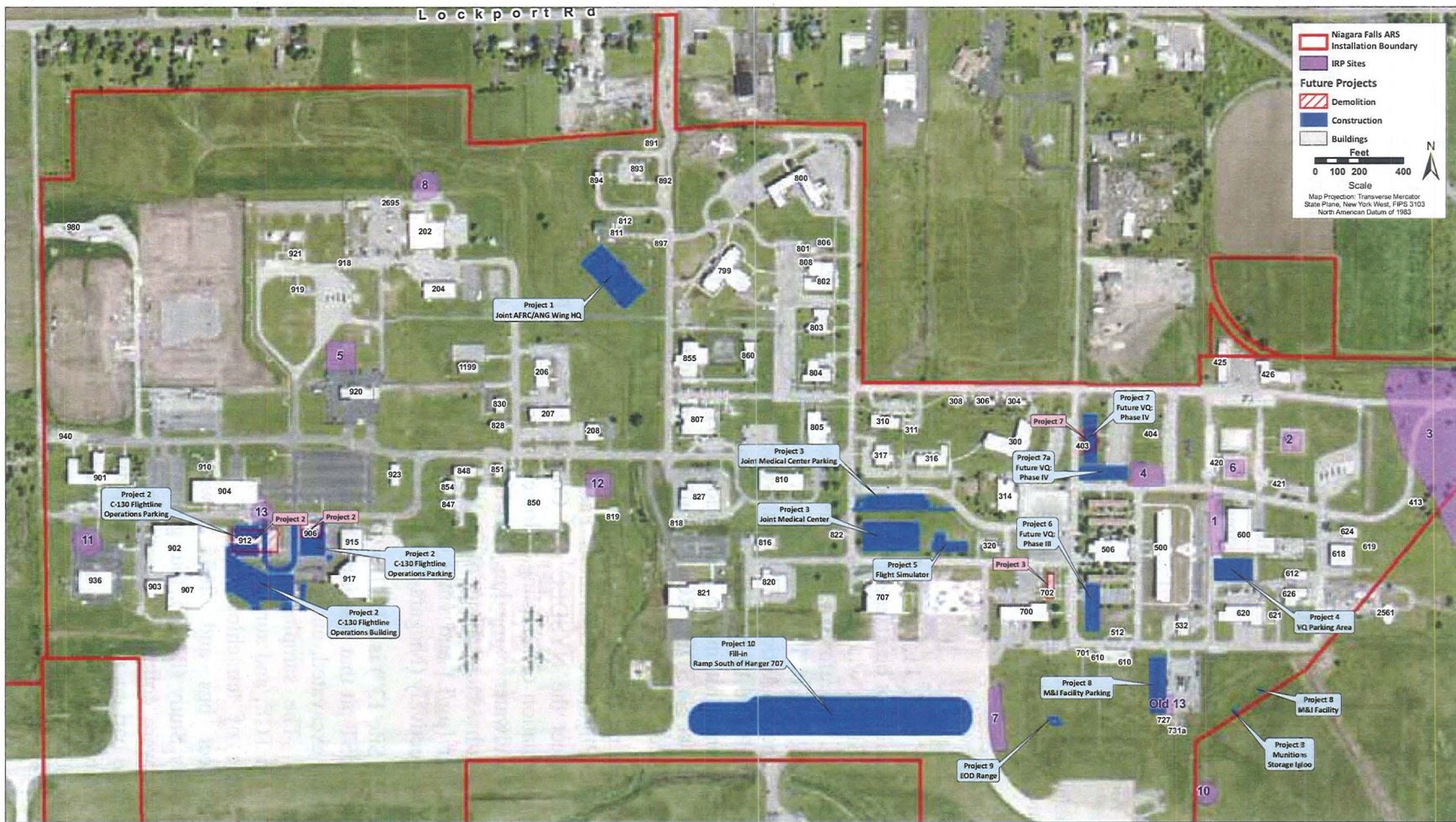
TRPH = Total Recoverable Petroleum Hydrocarbons

UST = underground storage tank

Because IRP sites 1, 2, 6, 9, 11, 12, and Old Site 13 have a No Further Remedial Action Planned (NFRAP) status and would not be affected by the Proposed Action, they will not be discussed further in detail in this EA. IRP Site 4, with a NFRAP status, would be adjacent to Project 7a but would not be expected to be impacted. Therefore, it is not discussed further in this EA. The Proposed Action would not impact IRP Sites 3, 5, 7, 8, or 10 and, therefore, they will not be discussed further. IRP Site 13 would be impacted by the Proposed Action. The northwestern part of Project 2 (C-130 Flightline Operations Facility) is within the IRP Site 13, where a road is proposed to be constructed. IRP Site 13 is listed as a Solid Waste Management Unit in the installation's NYSDEC 373 Corrective Action Permit and is required to be closed under NYSDEC RCRA regulations in addition to being closed under the USAF IRP (Niagara Falls ARS 2002d).

Four active groundwater monitoring wells (MW13-3D, MW13-6D, MW13-6, and MW13-4D), are within the Project 2 (C-130 Flightline Operations Facility) project site. Three of these wells are either historically clean or meet the NYSDEC 373 Corrective Action Permit termination criteria and are recommended for termination of sampling. However, post-termination monitoring can not be initiated due to continued groundwater extraction elsewhere at the site. One groundwater monitoring well, MW13-4D, near the southwestern corner of Building 912, had levels of VOCs (cis- 1,2-Dichloroethene, 17 micrograms per liter [µg/L] and vinyl chloride, 17 µg/L) above the USEPA screening criteria of 5 µg/L and 2 µg/L, respectively (Niagara Falls ARS 2009d).

IRP Site 13 (“new IRP Site 13”) is a UST pit, south of Building 904 and west of Building 905, near IRP Site 11. The site is a UST pit that was initially used as a motor fuel tank for a gas station. In 1986, the tank was pumped out, excavated, and removed. During tank excavation and removal, water and soil samples were taken. The samples of standing water in the pit contained elevated levels of tetrachloroethylene and TCE, and surface soils sampled collected near the western edge of the tank pit indicated the presence of tetrachloroethylene. Groundwater in the vicinity of IRP Site 13 is approximately 6.5 feet bgs and flows toward the northeast. During a 1989 Remedial Investigation/Feasibility Study (RI/FS), four groundwater monitoring wells were installed, and soil and groundwater samples were collected. Contaminants detected in the soil samples above background concentrations included barium, nickel, and total petroleum hydrocarbons (TPH). Contaminants detected in groundwater above risk-based criteria included benzene, vinyl chloride, toluene, and manganese. Two groundwater pumping wells were installed with groundwater being discharged to the local publicly owned treatment works (Niagara Falls ARS 2002d).



Sources of Aerial Photography: ESRI Resource Center, 2007; Installation Boundary and Buildings: Niagara Falls ARS, 2008

Figure 3-4. IRP Sites at Niagara Falls ARS

4. Environmental Consequences

The following discussion elaborates how environmental and socioeconomic resources impacts are categorized and described for the resource areas analyzed.

Short-term or long-term. These characteristics are determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term effects are those that would occur only with respect to a particular activity or for a finite period or only during the time required for construction or installation activities. Long-term effects are those that are more likely to be persistent and chronic.

Direct or indirect. A direct effect is caused by and occurs contemporaneously at or near the location of the action. An indirect effect is caused by a proposed action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action. For example, a direct effect of erosion on a stream might include sediment-laden waters in the vicinity of the action, whereas an indirect impact of the same erosion might lead to lack of spawning and result in lowered reproduction rates of indigenous fish downstream.

Negligible, minor, moderate, or major. These relative terms are used to characterize the magnitude or intensity of an impact. Negligible effects are generally those that might be perceptible but are at the lower level of detection. A minor effect is slight, but detectable. A moderate effect is readily apparent. A major effect is one that is severely adverse or exceptionally beneficial.

Adverse or beneficial. An adverse effect is one having adverse, unfavorable, or undesirable outcomes on the man-made or natural environment. A beneficial effect is one having positive outcomes on the man-made or natural environment. A single act might result in adverse effects on one environmental resource and beneficial effects on another resource.

Significance. Significant effects are those that, in their context and due to their intensity (severity), meet the thresholds for significance set forth in CEQ regulations (40 CFR 1508.27).

Context. The context of an effect can be localized or more widespread (e.g., regional).

Intensity. The intensity of an effect is determined through consideration of several factors, including whether an alternative might have an adverse impact on the unique characteristics of an area (e.g., historical resources, ecologically critical areas), public health or safety, or endangered or threatened species or designated critical habitat. Effects are also considered in terms of their potential for violation of Federal, state, or local environmental law; their controversial nature; the degree of uncertainty or unknown effects, or unique or unknown risks; if there are precedent-setting effects; and their cumulative effects (see **Section 5**).

4.1 Noise

4.1.1 Evaluation Criteria

Noise impact analyses typically evaluate potential changes to the existing noise environment that would result from implementation of a proposed action. Potential changes in the acoustical environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels or reduce the ambient sound level), negligible (i.e., if the total number of sensitive receptors to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased sound exposure to unacceptable noise levels or ultimately increase the ambient sound level). Projected noise effects were evaluated qualitatively for the alternatives considered.

As previously discussed, large arms and explosive activities create impulsive noise. The USAF does not provide guidance for impulsive noise, since the USAF is primarily concerned with aircraft-related noise. Therefore, U.S. Army regulations are presented in this EA to assess the impact on the noise environment associated with operation of Project 9 (EOD Range) (see **Section 4.2.3**). DNL and peak sound levels from EOD activities under the Proposed Action are assessed using the U.S. Army guidelines presented in Army Regulation (AR) 200-1, *Environmental Protection and Enhancement* (U.S. Army 2007).

Noise Zones

Noise exposure levels are depicted visually for analytical purposes as noise contours that connect points of equal value. These noise contours are overlaid on a map of an airfield or range vicinity. The area encompassed by a noise contour is a noise exposure zone, also referred to as a “noise zone.” Under U.S. Army regulations, there are four noise zones, which include the land use planning zone (LUPZ). **Table 4-1** shows the noise limits within the noise zones for impulsive noise, e.g., large arms, artillery firing, and explosives.

Table 4-1. Impulse DNL Noise Limits for Noise Zones

Noise Zone	Impulse DNL Noise Limit in dBC
LUPZ	57–62
Noise Zone I	< 62
Noise Zone II	62–70
Noise Zone III	> 70

Source: U.S. Army 2007

LUPZ. The LUPZ is used to better predict noise impacts when levels of operations at large caliber weapons ranges are above average. This zone can provide the installation with an adequate buffer for land use planning and can reduce conflicts between the installation’s noise-producing activities and the civilian community. This area is acceptable for noise-sensitive land uses.

Noise Zone I. Noise Zone I includes all areas around a noise source in which the DNL is less than 62 dBC for large arms activity. This area is usually acceptable for all types of land use activities.

Noise Zone II. Noise Zone II consists of an area where the DNL is between 62 and 70 dBC for large arms weapons. Land within Noise Zone II should normally be limited to activities such as industrial, manufacturing, transportation, and resource production. However, if the community determines that land in Noise Zone II must be used for residential purposes, then noise level-reduction features of 25 to 30 dB should be incorporated into the design and construction of new buildings.

Noise Zone III. Noise Zone III consists of the area around the noise source where the DNL is greater than 70 dBC for large arms weapons. The noise levels within Noise Zone III are considered so severe that noise-sensitive land uses should not be considered therein.

Peak Noise Levels

Per AR 200-1, DNL is the primary descriptor for military noise (U.S. Army 2007). However, the use of average noise levels like DNL over a protracted time period generally does not adequately assess the probability of community noise complaints. Supplemental metrics, such as single-event noise data (e.g.,

PK 15[met]) may be employed where appropriate to provide additional information on the effects of noise from test and training ranges. Peak sound levels from impulsive activities are assessed using the guidelines shown in **Table 4-2**.

Table 4-2. Impulse Noise Guidelines for Peak Sound Levels

PK15(met) Noise Limit in dBP	Risk of Complaints
< 115	Low
115–130	Medium
130–140	High
> 140	Risk of physiological damage to unprotected human ears and structural damage claims.

Source: U.S. Army 2007

4.1.2 Proposed Action

Construction and Demolition Noise. The sources of noise under the Proposed Action that could impact populations include demolition and construction activities. These sources are addressed in the following paragraphs.

The components of the Proposed Action consist of constructing 10 new facilities and demolishing Buildings 906 and 912 (Project 2), Building 702 (Project 3), and Building 403 (Project 7 and Project 7a). Please see **Section 2.2** for a description of the demolition and construction projects included under the Proposed Action. Noise from demolition and construction activities varies depending on the type of equipment being used, the area that the action would occur in, and the distance from the noise source. To predict how construction activities would impact adjacent populations, noise from the probable construction and demolition activities was estimated. For example, as shown in **Table 3-1**, construction and demolition usually involves several pieces of equipment (e.g., trucks and bulldozers) that can be used simultaneously. Under the Proposed Action, the cumulative noise from the equipment, during the busiest day, was estimated to determine the total impact of noise from demolition and construction activities at a given distance. Examples of cumulative construction and demolition noise during daytime hours are shown in **Table 4-2**. These sound levels were estimated by adding the noise from several pieces of equipment and then calculating the decrease in noise levels at various distances from the source of the noise.

The noise from construction and demolition equipment would be localized, short-term, and intermittent during machinery operations. Heavy equipment would be used periodically during construction and demolition; therefore, noise levels from the equipment would fluctuate throughout the day.

Under the Proposed Action, four existing buildings would be demolished and ten new facilities would be constructed. As shown on **Figure 2-1**, the proposed construction and demolition projects are spread throughout Niagara Falls ARS. Impacts on the ambient noise environment within the installation boundary would vary based on the receptor's distance from the proposed project as shown in **Table 3-3**.

Table 4-2. Estimated Noise Levels from Construction and Demolition Activities

Distance from Noise Source	Estimated Noise Level
50 feet	92 dBA
100 feet	86 dBA
150 feet	83 dBA
200 feet	80 dBA
400 feet	74 dBA
800 feet	68 dBA
1,200 feet	64 dBA

Construction and demolition of some of the proposed projects could affect the ambient noise environment outside the installation boundary. Projects 3, 5, 6, and 8 through 10 are greater than 1,200 feet from the closest off-installation, noise-sensitive receptor. Persons greater than 1,200 feet from construction and demolition activities would likely experience noise levels of less than 64 dBA. Projects 1, 2, and 4 are approximately 1,000 feet from the closest off-installation, noise-sensitive receptor. Persons approximately 1,000 feet from construction and demolition activities would likely experience noise levels of 66 dBA. Projects 7 and 7a are directly south of the installation boundary and are the closest to a noise-sensitive receptor out of the 10 proposed projects (a residence approximately 500 feet to the north along Flint Avenue). Persons accessing the residence along Flint Avenue would likely experience noise levels of approximately 76 dBA from Project 7 or Project 7a construction activities.

Consequently, construction and demolition activities under the Proposed Action would result in short-term, minor, adverse impacts on the noise environment in the vicinity of construction and demolition activities. However, noise generation would last only for the duration of construction and demolition activities and would diminish as construction and demolition activities moved farther away from the receptor. Noise generation could be minimized by restricting construction and demolition to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.) and the use of measures such as equipment exhaust mufflers. It is not anticipated that the short-term increase in ambient noise levels from the Proposed Action would cause significant adverse effects on the surrounding populations.

Vehicular Noise. Short-term, negligible to minor, adverse impacts on the ambient environment are anticipated as a result of the increase in construction vehicular traffic under the Proposed Action. Construction traffic would use existing roadways as discussed in **Section 3.2.2** to access Niagara Falls ARS and would use the existing roadways within the installation boundary to access each project area.

Operational Noise. Operation of Projects 1 through 8 would involve installation personnel accessing the buildings for their intended purpose and would not be expected to result in adverse impacts on the ambient noise environment. There would be no operational noise impacts on the ambient noise environment associated with Project 10 (Fill-in Ramp South of Hangar 707). Out of the ten proposed projects, only operation of Project 9 (EOD Range) would be expected to result in adverse impacts on the ambient noise environment; therefore, operation of Project 9 is discussed in detail in this EA.

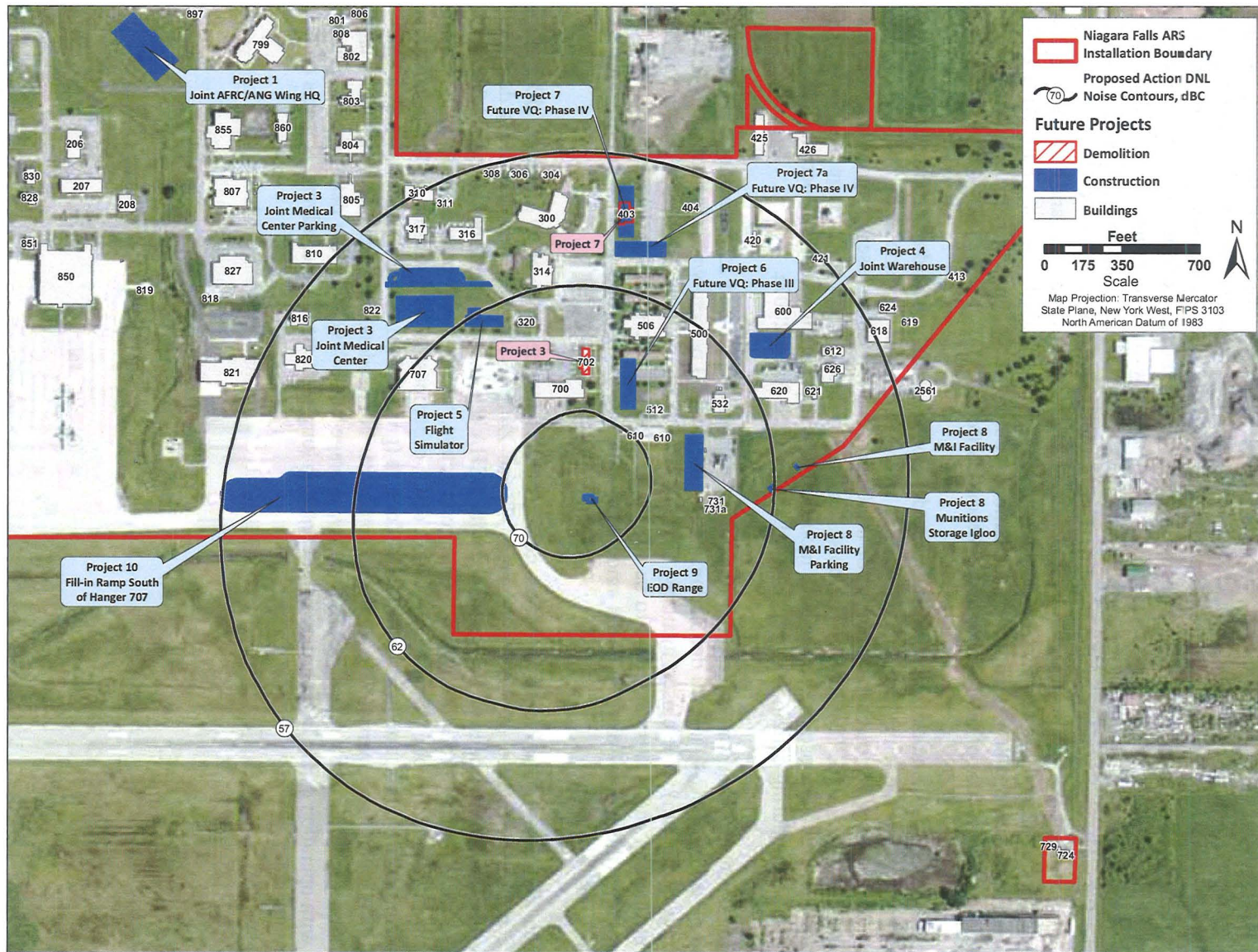
In accordance with AFI 32-3001, *Explosive Ordnance Disposal Program*, the Niagara Falls ARS EOD Range would meet requirements for storage of hazardous and explosive materials, classified information, and firearms according to DOD 6055.9, *DOD Explosives Safety Standards*; Air Force Manual 91-201, *Air Force Explosives Safety Standards*; and other Federal, state, and local laws (USAF 2007). The EOD

Range is proposed to be constructed to provide regional EOD capability for 2.5-pound explosive proficiency training and support the beddown of the EOD Flight. Multiple types of ordnance would be disposed of at the Niagara Falls ARS EOD Range, including machine gun and rifle rounds, shotgun cartridges, and grenades (Mathews 2010). Predominantly, operation of Project 9 (EOD Range) would include attaching a 2.5-pound C-4 explosive charge to unexploded ordnance, and then detonating the charge to effectively dispose of the ordnance. Smaller types of ordnance, such as shotgun shells, would be placed into a device similar to a shotgun barrel which “fires” and collects the contents; the shells would not explode (Hartloff 2011). Approximately 25 detonations would occur during the average busy month; this would include 5 detonations per day for 5 days. Two of the 5 operating days per month would be the Saturday and Sunday of the monthly Unit Training Assembly weekend (Hartloff 2011). Twenty-five detonations per month represents an average busy month for the Niagara Falls ARS EOD Flight. During a slow month, as few as five detonations could be conducted. Niagara Falls ARS EOD Flight personnel estimate that 80 percent of the detonations would be 2.5 pounds of C-4 explosive, and 20 percent would include the use of the firearm disposal tool (Hartloff 2011).

Average Noise Levels. DNL noise zones in dBC were developed to analyze land use compatibility using the computerized noise modeling program BNOISE2. BNOISE2 was developed by the U.S. Army Construction Engineering Research Laboratory for the Operational Noise to assess large arms weapons and explosive noise (USACHPPM 2003). The noise zones were modeled for an average busy month of EOD training activities. The use of average busy month DNL is appropriate when the operations tempo is significantly different during certain peak periods of the year (U.S. Army 2007).

The operational scenario that was entered into the software program included 25 detonations per month, of which 80 percent were C-4 (i.e., 20 detonations per month) and 20 percent were shotgun shells (i.e., 5 shotgun firings per month). The closest available charge of C-4 available in the BNOISE2 program is 2.2 pounds. The shotgun shells were assumed to be 12-gauge. The specific data that were entered into the software program (the type of explosive, the amount of explosive charge, and weather information) are provided in **Appendix D**.

As shown on **Figure 4-1**, the Proposed Action noise contours for the DNL of 57 dBC, 62 dBC, and 70 dBC are plotted on a map of the project area. Noise Zone III (greater than 70 dBC) does not encompass off-installation property. In accordance with OSHA regulations, personnel accessing the EOD Range would wear hearing protection when the range is active, which would provide protection against impacts from high noise levels. The LUPZ (57–62 dBC) encompasses land outside of the installation boundary to the north, south, southeast, and Noise Zone II (greater than 62 dBC) encompasses a small amount of off-installation property to the south and southeast. No residences or other noise-sensitive land uses are within the DNL noise zones. Consequently, average noise levels for the detonation activities associated with operation of the EOD Range would result in long-term, negligible, adverse impacts on the noise environment.



Sources of Aerial Photography: ESRI Resource Center, 2007. Installation Boundary and Buildings: Niagara Falls ARS, 2008

Figure 4-1. Proposed DNL Noise Contours for Operation of the EOD Range

Peak Noise Levels. Noise from detonation of EOD was estimated using the OneShot component of BNOISE2. Per AR 200-1, if there are multiple weapon types fired from one location, the single-event level used should be the loudest level that occurs at each receiver location. Therefore, PK15(met) noise levels were estimated using the loudest explosive proposed for use at the EOD Range (i.e., 2.5 pound of C-4 explosive).

The specific data that were entered into the software program (the type of explosive [i.e., C-4], the amount of explosive charge [2.2 pounds], and weather information) are provided in **Appendix D**. Noise levels for a single EOD detonation were estimated for each of the distances provided below. The buildings directly northeast (Buildings 610 and 701) and southeast (Buildings 727, 731, and 731a) of the proposed range are used for storage and utilities, respectively; therefore, Building 700 (Aerospace Ground Equipment Shop) is the closest structure to the proposed range that would be regularly accessed by non-EOD Niagara Falls ARS personnel. Peak noise levels resulting from operation of the EOD Range were estimated as follows:

- Niagara Falls ARS personnel accessing Building 700 (Aerospace Ground Equipment Shop), approximately 440 feet northeast of the proposed EOD range, would likely experience noise levels of approximately 150 dBP PK15(met) from detonation activities if they were outside the building.
- Persons at the installation boundary, approximately 700 feet east of the proposed EOD Range, would likely experience noise levels of approximately 150 dBP PK15(met) from detonation activities.
- Persons accessing the residences on the eastern side of Walmore Road (the closest off-installation, noise-sensitive receptor) approximately 2,300 feet east of the proposed EOD Range, would likely experience noise levels of approximately 146 dBP PK15(met) from detonation activities.
- Persons accessing the residential community approximately 1 mile southeast of the proposed EOD Range off Niagara Road would likely experience noise levels of approximately 132 dBP PK15(met) from detonation activities.

As shown in **Table 4-1**, peak noise levels from the proposed EOD detonations (132–146 dBP PK15[met]) would be expected to result in a risk of physiological damage to unprotected human ears and structural damage claims for the populations along Walmore Road, and a high risk of noise complaints from populations approximately 1 mile from the installation. However, the State of New York and Niagara County do not have any noise-control regulations (see **Section 3.2.1**); therefore, operation of the EOD Range would not violate any local ordinances.

Consequently, peak noise levels for the detonation activities associated with operation of the EOD Range would result in short-term, moderate, adverse impacts on the noise environment. However, noise generation would last only for the duration of the detonation and would diminish as detonation activities moved farther away from the receptor. Detonation would be restricted to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.) (Hartloff 2011). In accordance with the recommendations of AR 200-1, Niagara Falls ARS could also inform the public about the installation's EOD activities prior to the first detonation (U.S. Army 2007).

4.1.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and conditions described in **Section 3.2.2** would remain the same. The projects included under the Proposed Action

would not be constructed and Niagara Falls ARS would not be in compliance with the FYDP or 2005 BRAC requirements. No adverse effects on the ambient noise environment would occur under the No Action Alternative.

4.2 Land Use

4.2.1 Evaluation Criteria

An analysis of the effects of a proposed action on land use on an AFRC installation addresses the potential for impacts to occur on areas affected and the potential for buildings and other obstructions to intrude into controlled airspace. New construction should be compatible with current land use guidelines. Land use can remain compatible, become compatible, or become incompatible. Projected compatibility issues were measured both qualitatively and quantitatively. The level of potential land use effects is based on the degree of land use sensitivity in areas affected by a proposed action and compatibility of proposed actions with existing conditions. In general, a land use effect would be significant if it met any of the following criteria:

- Was inconsistent or in noncompliance with existing land use plans or policies
- Precluded the viability of existing land use
- Precluded continued use or occupation of an area
- Was incompatible with adjacent land use to the extent that public health or safety is threatened
- Conflicted with planning criteria established to ensure the safety and protection of human life and property.

4.2.2 Proposed Action

Implementation of the Proposed Action would be expected to have short-term, negligible, adverse impacts on on-installation land use during construction and demolition activities. The Proposed Action would be in compliance with the 1998 *Niagara Falls Air Reserve Station General Plan*. Implementation would require changing the land use designations of a number of project sites; however, this change would not conflict with any land use planning criteria and would not result in an adverse impact at NFARS. **Table 4-3** presents an overview of the current land use designation and proposed land use change of each project site. No change is anticipated in the future use of adjacent areas; therefore, the Proposed Action would not preclude the viability of existing adjacent land uses or future plans.

Explosives safety QD arcs would be established around Project 8 (Munitions Storage Igloo and M&I Facility) and Project 9 (EOD Range). A 400-foot QD arc would be established around Project 8 and a 300-foot QD arc would be established around Project 9. Future development within these arcs would be limited; however, this is not expected to result in an adverse impact on future development. None of the proposed projects would be within aircraft accident potential zones; therefore, no impacts would be anticipated from conflicts with land use restrictions.

No impacts on off-installation land use would be expected from implementation of the Proposed Action.

4.2.3 No Action Alternative

Under the No Action Alternative, existing land use conditions would remain the same as described in **Section 3-2**. No impacts would be expected.

Table 4-3. Land Use Changes Associated with the Proposed Action

Project	Current Land Use	Proposed Land Use
Project 1. Joint AFRC/Air National Guard Wing Headquarters Facility	Open Space/Outdoor Recreation	Administrative
Project 2. C-130 Flightline Operations Facility	Aircraft Operations and Maintenance	Aircraft Operations and Maintenance
Project 3. Joint Medical Facility	Open Space/ Administrative	Medical
Project 4. Visitor's Quarters Parking Area	Industrial	Industrial
Project 5. Flight Simulator Facility	Open Space/ Administrative	Administrative
Project 6. Visitor's Quarters, Phase III	Administrative	Lodging
Project 7. Visitor's Quarters, Phase IV	Open Space/Lodging	Lodging
Project 7a. Visitor's Quarters, Phase IV, east-west orientation	Open Space/Lodging	Lodging
Project 8. Munitions Storage Igloo and M&I Facility	Open Space	Aircraft Operations and Maintenance
Project 9. EOD Range	Open Space	Industrial
Project 10. Fill-in Ramp South of Hangar 707	Airfield	Airfield

4.3 Air Quality

4.3.1 Evaluation Criteria

The Federal *de minimis* threshold emissions rates were established by the USEPA in the General Conformity Rule to focus analysis requirements on those Federal actions with the potential to substantially affect air quality. **Table 4-4** presents these thresholds by regulated pollutant. As shown in **Table 4-4**, *de minimis* thresholds vary depending on the severity of the nonattainment area classification.

The environmental consequences on local and regional air quality conditions near a proposed Federal action are determined based upon the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. Specifically, the impact in NAAQS "nonattainment" areas is considered significant if the net changes in project-related pollutant emissions result in any of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Increase the frequency or severity of a violation of any ambient air quality standard
- Delay the attainment of any standard or other milestone contained in the SIP or permit limitations.

Table 4-4. Conformity *de minimis* Emissions Thresholds

Pollutant	Status	Classification	<i>de minimis</i> Limit (tpy)
O ₃ (measured as NO _x or VOCs)	Nonattainment	Extreme	10
		Severe	25
		Serious	50
		Moderate/marginal (inside ozone transport region)	50 (VOCs)/ 100 (NO _x)
		All others	100
	Maintenance	Inside ozone transport region	50 (VOCs)/100 (NO _x)
		Outside ozone transport region	100
CO	Nonattainment/ maintenance	All	100
PM ₁₀	Nonattainment/ maintenance	Serious	70
		Moderate	100
		All maintenance areas	100
PM _{2.5} (measured directly, as SO ₂ , or as NO _x)	Nonattainment/ maintenance	All	100
SO ₂	Nonattainment/ maintenance	All	100
NO _x	Nonattainment/ maintenance	All	100
Pb	Nonattainment/ maintenance	All	25

Source: 40 CFR 93.153

With respect to the General Conformity Rule, effects on air quality would be considered significant if the proposed Federal action would result in an increase of a nonattainment or maintenance area's emissions inventory above the *de minimis* threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or for pollutants for which the area has been redesignated as a maintenance area. Certain Federal actions are exempted in 40 CFR 93.153(c) from a general conformity determination. However, these exemptions do not apply to this Proposed Action.

4.3.2 Proposed Action

The Proposed Action would generate both long- and short-term air pollutant emissions. The construction and demolition projects associated with the Proposed Action would generate air pollutant emissions as a result of grading, filling, compacting, trenching, and construction operations, but these emissions would be temporary and would not be expected to generate any offsite effects. The Proposed Action would not result in a net increase in personnel or commuter vehicles. Therefore, the Proposed Action's emissions from existing personnel and commuter vehicles would not result in an adverse impact on local or regional air quality.

Construction and demolition operations would result in short-term, minor, adverse impacts from emissions of criteria pollutants as combustion products from construction equipment, and evaporative

emissions from architectural coatings and asphalt paving operations. Emissions of all criteria pollutants would result from construction activities including combustion of fuels from on-road haul trucks transporting materials and construction commuter emissions.

Construction and demolition projects would generate particulate matter emissions as fugitive dust from ground-disturbing activities. Fugitive dust emissions would be greatest during initial site-preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. Appropriate fugitive dust-control measures would be employed during construction and demolition activities to suppress emissions.

Stationary Source Emissions. Operational emissions from stationary sources associated with the Proposed Action would not be expected to result in adverse effects on air quality. Day-to-day operations associated with the Proposed Action would generate emissions of criteria pollutants as combustion products from the burning of natural gas by boilers used to provide comfort heating and from EOD detonations. All new stationary sources obtained as a result of the Proposed Action would be coordinated with the NYSDEC and would comply with all state and Federal laws and regulations, as appropriate and would be addressed through Federal and state permitting program requirements under New Source Review regulations (40 CFR Parts 51 and 52).

For the purpose of this analysis, it was assumed that the total heating value for all comfort heating units associated with the Proposed Action would be less than or equal to 300,000 British thermal units (Btus) per hour for a maximum operating time of 8,760 hours per year. Emissions from comfort heating units were estimated using emissions factors and methodologies listed in USEPA AP 42 (USEPA 1995). All calculations assume comfort heating units are fueled by natural gas and are less than 300,000 Btus in size.

For the purpose of this analysis, it was assumed that up to five EOD detonations would occur per month, and up to 60 detonations would occur per year, with each detonation using the equivalent of up to 3.37 pounds of trinitrotoluene. Emissions from EOD detonations were estimated using emissions factors and methodologies listed in USEPA AP 42 (USEPA 2009). Emission calculations assume the use of M031, Demolition Block Charges.

Greenhouse Gas Emissions. The Proposed Action would contribute directly to emissions of GHGs from the combustion of fossil fuels from construction activities and commuting of mission-support personnel. CO₂ accounts for 92 percent of all GHG emissions; electric utilities are the primary source of anthropogenic CO₂, followed by transportation. The U.S. Energy Information Administration estimates that in 2007, gross CO₂ emissions in the State of New York were 200.16 million metric tons of CO₂ equivalents (EIA 2010). Annual activities associated with the Proposed Action would emit 1,261 metric tons of CO₂. Total annual CO₂ emissions from the Proposed Action would be 0.0005 percent of the New York state CO₂ emissions. Therefore, the Proposed Action would represent a negligible contribution towards statewide GHG inventories.

Summary. Since Niagara County is classified as a Subpart 1 basic nonattainment area for 8-hour O₃, General Conformity Rule requirements are applicable to the Proposed Action. The Proposed Action would generate emissions well below *de minimis* levels. In addition, the Proposed Action would generate emissions well below 10 percent of the emissions inventories for NFIAQCR 162 (USEPA 2010d). Therefore, the construction, demolition, and operational activities associated with the Proposed Action would not have significant effects on regional or local air quality. Emissions from the Proposed Action are summarized in **Table 4-5**. Emissions estimation spreadsheets and a summary of the methodology used are included in **Appendix E**.

Table 4-5. Estimated Air Emissions Resulting from the Proposed Action

Activity	NO _x tpy	VOC tpy	CO tpy	SO ₂ tpy	PM ₁₀ tpy	PM _{2.5} tpy	CO ₂ tpy
Construction Combustion	11.756	1.580	5.095	0.798	0.821	0.796	1,347.953
Construction Fugitive Dust	-	-	-	-	32.509	3.251	-
Construction Commuter	0.110	0.110	0.992	0.001	0.010	0.007	131.482
Stationary Sources	0.119	0.007	0.052	0.001	0.024	0.011	150.323
Total Proposed Action Emissions	11.985	1.697	6.138	0.800	33.364	4.065	1,629.758
Percent of NFIAQCR 162 Inventory	0.022 %	0.0028 %	0.0019 %	0.0014 %	0.103 %	0.052 %	0.001%*

Notes: * Percent of State of New York's CO₂ emissions.

Project 7a would increase construction combustion values associated with demolition of the parking area as follows: 0.21 tpy (NO_x), 0.012 tpy (VOCs), 0.082 tpy (CO), 0.005 tpy (SO₂), 0.013 tpy (PM₁₀), 0.012 tpy (PM_{2.5}), and 24.19 tpy (CO₂).

4.3.3 No Action Alternative

Under the No Action Alternative, Niagara Falls ARS would not implement the Proposed Action, which would result in the continuation of the existing condition, as described in **Section 2.1**. Therefore, no direct or indirect adverse impacts would be expected on local or regional air quality from implementation of the No Action Alternative.

4.4 Safety

4.4.1 Evaluation Criteria

Impacts were assessed based on direct effects from construction activities, including secondary effects such as environmental contamination. The extent of these secondary effects is situationally dependent and difficult to quantify.

4.4.2 Proposed Action

Construction Site Safety. Short-term, minor, adverse effects on safety would be expected from construction activities. Implementation of the Proposed Action would slightly increase the short-term risk associated with construction contractors performing work at Niagara Falls ARS during the normal workday because the level of such activity would increase. Construction contractors would be required to establish and maintain safety programs. The projects associated with the Proposed Action would not pose a safety risk to installation personnel or to activities at the installation. No off-installation safety impacts would be expected from construction activities associated with the Proposed Action. Work areas surrounding construction or demolition activities would be fenced and appropriate signs posted to further reduce safety risks to outside personnel. No impacts regarding fire hazards or public safety would be expected to occur within the vicinity of the proposed projects from construction or demolition-related activities anticipated as part of the Proposed Action.

Specifications for the proposed construction activities and USAF regulations prohibit the use of ACM and LBPs for new construction. Some of the buildings scheduled for demolition or renovation could contain ACM and LBP. Sampling for asbestos and LBP would occur concurrent with demolition activities and would be handled in accordance with the Niagara Falls IAP-ARS Asbestos and Lead-Paint Management Plans and USAF policy.

Construction, demolition, and infrastructure activities would be accomplished in accordance with Federal, state, and local regulations to minimize hazards associated with hazardous materials, wastes, and substances. These hazards are discussed in more detail in **Section 3.9**. Demolition activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established OSHA, USEPA, and USAF safety regulations.

Explosives and Munitions Safety. Short-term, minor, adverse effects could occur during construction activities within the existing QD arcs. Contractors working within a QD arc would be exposed to an increased risk of potential explosions. No handling or transportation of munitions would occur within QD arcs while construction workers are within these areas. This would minimize explosive safety risks to construction workers. Any construction or demolition activities within the existing munitions storage area or proposed EOD Range should be monitored for potential unexploded ordnance. All projects within QD arcs would be mission-necessary and consistent with current land uses inside established QD arcs.

Some proposed projects are identified as being within or very near QD arcs. Munitions transport would not occur during construction activities to minimize construction workers' exposure to explosive safety hazards. The EOD facility must meet requirements for storage of hazardous and explosive materials, classified information, and firearms according to DOD 6055.9-STD, *DOD Explosives Safety Standards*, AFMAN 91-201, *Air Force Explosives Safety Standards* and other Federal, state, and local laws. All Occupational Safety requirements for EOD Flights listed in AFOSHSTD 91-501, *Air Force Consolidated Occupational Safety Standard*, would be followed as applicable. Criteria and standards for munitions facility planning and programming are identified in the *Air Force Munitions Facilities Standards Guide*, AFD 070913-082. The criteria also apply to the repair, renovation, and expansion of USAF munitions facilities that require significant improvements to meet safety, security, and operational mission requirements.

Construction would comply with all applicable fire and safety codes and the Proposed Action would meet all applicable AT/FP requirements. A Health and Safety Plan would be completed prior to commencing construction activities.

No long-term, adverse impacts on safety would be expected for the projects associated with the Proposed Action; however, long-term, minor, beneficial impacts on safety would be expected by allowing onsite EOD training and by upgrading the Munitions Facility. Onsite EOD training would eliminate the need for traveling off-installation and the new munitions facility would increase munitions storage capacity with newer, safer storage and inspection facilities.

4.4.3 No Action Alternative

Long-term, minor, adverse effects on safety would be expected under the No Action Alternative because no new construction would be implemented, which could lead to various poor facility operations, increasing the risk of safety for anyone on-installation. Long-term, minor, adverse effects on safety would also be expected due to the continued use of an off-installation location for EOD training. Continued use of an off-installation EOD site would pose potential safety risks to installation personnel traveling to a training location.

4.5 Water and Soil Resources

4.5.1 Evaluation Criteria

Evaluation criteria for effects on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. A proposed action would have significant effects on water resources if it were to do one or more of the following:

- Substantially reduce water availability or supply to existing users
- Overdraft groundwater basins
- Exceed safe annual yield of water supply sources
- Substantially adversely affect water quality
- Endanger public health by creating or worsening health hazard conditions
- Threaten or damage unique hydrologic characteristics
- Violate established laws or regulations adopted to protect water resources.

The potential effect of flood hazards on a proposed action is important if such an action occurs in an area with a high probability of flooding.

Minimization of soil erosion is considered when evaluating potential effects of a proposed action on soil resources. Generally, adverse effects can be avoided or minimized if proper construction techniques, erosion-control measures, and structural engineering design are incorporated into project development. Effects on soils would be significant if they would alter the soil composition, structure, or function within the environment.

4.5.2 Proposed Action

4.5.2.1 Water Resources

Implementation of the Proposed Action has the potential to result in long-term, minor, indirect, adverse effects on water resources as storm water runoff volume and velocity would be expected to increase due to the increase in impervious surfaces. This increased runoff could impact the surface water quality of the receiving water bodies, such as Cayuga Creek. However, the Niagara Falls ARS *Erosion and Sedimentation Control Manual* and *Storm Water Pollution Prevention Plan* would implement BMPs to prevent surface water degradation. Niagara Falls ARS would adhere to provisions in the general permit including maintenance of water quality. Adherence to standard engineering practices and applicable codes and ordinances would typically reduce storm water runoff-related impacts to a level of insignificance. Under NYSDEC regulations, and consistent with the *New York State Storm Water Management Design Manual* (NYSDEC 2010f), post-construction storm water quality and quantity is required to be managed to pre-construction conditions. In addition, the *New York Guidance for Erosion and Sediment Control* includes standards and specifications for erosion and sediment control measures commonly used at construction sites. Both vegetative and structural measures are presented (NYSDEC 2005).

A 1999 special report by the Buffalo District of the USACE, *Summary of Hydrology for the Niagara Falls Air Reserve Station*, indicated that development along Cayuga Creek at Niagara Falls ARS increased runoff by 0.4 percent (USACE 1999). The modeling indicated that the installation has little impact on peak discharge of Cayuga Creek downstream. Therefore, it is not anticipated that further development at Niagara Falls would add a significant area of impervious surfaces to affect downstream water quantity (Niagara Falls ARS 2005a).

Excavation or trenching could be required to install utilities for Projects 2 (C-130 Flightline Operations Facility) and 8 (Munitions Storage Igloo and M&I Facility). These activities would be expected to have a short-term, minor, and long-term, negligible impact on the drawdown of the water table in the vicinity of the site.

Project 2 (C-130 Flightline Operations Facility) is proposed to be constructed over an unregulated drainage ditch (Mathews 2011). The ditch is proposed to be relocated to retain drainage functionality within the site. Relocation of the ditch would result in short-term, minor adverse impacts on storm water runoff during relocation activities, and long-term, negligible impacts after relocation.

Wetlands. No construction would occur within or adjacent to delineated wetlands; therefore, no direct or indirect effects on wetlands would be anticipated to occur.

Waters of the United States. No projects would be constructed within or adjacent to waters of the United States, and therefore no effects would be anticipated from implementing the Proposed Action.

Implementation of best management practices (BMPs) and low-impact development (LID) techniques, where appropriate, could minimize the potential for indirect impacts on wetlands and other waters of the United States. These BMPs and LIDs could include the following:

- Water quality-control features such as sedimentation basins and detention or retention ponds should be installed as applicable prior to initiation of construction activities. Temporary basins and silt traps would be constructed as necessary to contain sediment and runoff on the construction area. Hay bales and silt fences should be used to minimize transport of sediments off the project area.
- Erosion-control structures should be installed downgradient of the construction site in sloped areas adjacent to water bodies. The structures should be regularly maintained and removed once vegetation has been reestablished.
- Storm water runoff originating from impervious surfaces should be routed through storm water treatment facilities prior to discharging into surface waters. Existing drainageways should be preserved. Water should not be diverted away from or towards wetlands and other waters of the United States. This aids in maintaining the existing hydrology.
- Removal of vegetation should be minimized. In areas where excavation is not proposed but vegetation removal is necessary, vegetation should be cut at the ground level, leaving roots intact. Disturbed areas should be seeded, sodded, or planted with indigenous material as soon as possible after construction activities are completed, as appropriate.

4.5.2.2 Soil Resources

Under the Proposed Action, short-term, minor to moderate, and long-term, minor, adverse effects on soils would be anticipated from soil disturbance and increased sedimentation and erosion. However, effects would be reduced to a level of insignificance from adhering to NYSDEC regulations to maintain pre-development site hydrology.

Soil units were analyzed to determine if any engineering limitations exist. According to the NRCS web soil survey, the soil suitability for the Odessa silty clay loam that underlies 95 percent of the installation is rated as very limited for small commercial buildings due to the depth to saturation and the shrink-swell potential of the soil (NRCS 2006). Site-specific soil surveys would be necessary to ascertain if engineering limitations exist. Under the Proposed Action, construction activities such as grading,

excavating, trenching, and recontouring of the soil would result in soil disturbance. Project 9 (EOD Range) would have additional impacts on soils during detonation of ordnance. Localized soil structure would be permanently altered once charges have detonated. Unless the soil would be periodically compacted after explosives have been detonated, the soil would be less compacted, which could contribute to an increase in erosion caused by wind and water eroding bare, susceptible soils.

Implementation of BMPs during construction would limit potential impacts resulting from construction activities. Measures for reducing erosion and sedimentation associated with construction of the Proposed Action would be addressed in site-specific SWPPPs. Fugitive dust associated with construction activities would be minimized by watering and soil stockpiling, thereby reducing the total amount of soil exposed to negligible levels. Standard erosion controls (e.g., silt fencing, sediment traps, application of water sprays, and revegetation at disturbed areas) would also reduce potential impacts associated with soil erosion and sedimentation.

4.5.3 No Action Alternative

Under the No Action Alternative, there would be no change from existing conditions at the installation, as described in **Section 3.5.2**. No impacts on water or soil resources would be anticipated.

4.6 Biological Resources

4.6.1 Evaluation Criteria

The significance of effects on biological resources is based on (1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource, (2) the proportion of the resource that would be affected relative to its occurrence in the region, (3) the sensitivity of the resource to proposed activities, and (4) the duration of ecological effects. A habitat perspective is used to provide a framework for analysis of general classes of effects (e.g., noise, human disturbance).

Ground disturbance and noise associated with construction activities directly or indirectly cause potential impacts on biological resources. Direct impacts from ground disturbance were evaluated by identifying the types and locations of potential ground-disturbing activities in correlation to important biological resources. Habitat removal and damage or degradation of habitats could be effects associated with ground-disturbing activities.

Noise associated with a proposed action might be of sufficient magnitude to result in the direct loss of individuals and reduce reproductive output within certain ecological settings. Ultimately, extreme cases of such stresses could have the potential to lead to population declines or local or regional extinction. To evaluate effects, considerations were given to number of individuals or critical species involved, amount of habitat affected, relationship of the area of potential effect to total critical habitat within the region, type of stressors involved, and magnitude of the effects. Since no federally listed endangered, threatened, proposed, or candidate species are known to inhabit Niagara Falls ARS, and there is no designated critical habitat on the installation, no environmental analysis was conducted pursuant to Section 7 of the ESA.

4.6.2 Proposed Action

Vegetation. Construction within the project sites for the Proposed Action would be expected to have long-term, direct, negligible adverse impacts on vegetation. Sites for Projects 3 (Joint Medical Facility), 5 (Flight Simulator Facility), 8 (Munitions Storage Igloo and M&I Facility), and 9 (EOD Range) are within open space composed primarily of nonnative grasses and various broadleaved weeds that are

mowed regularly. The site for Project 1 (Joint AFRC/ANG Wing Headquarters Facility) is currently a baseball field. Sites for Projects 2 (C-130 Flightline Operations Facility), 4 (Visitor's Quarters Parking Area), 6 (Visitor's Quarters, Phase III), 7 (Visitor's Quarters, Phase IV), 7a (Visitor's Quarters, Phase IV East-West Orientation), and 10 (Fill-in Ramp South of Hangar 707) are on disturbed portions of Niagara Falls AFS. As there are few opportunities for historic native plant communities to occur on Niagara Falls AFS and there have been no observations made of any unique native vegetative species occurring on the installation, impacts on vegetation are expected to be negligible from the permanent loss of existing vegetation within any of the project sites. Long-term, direct, negligible to minor, beneficial impacts would be expected if areas that are disturbed from construction activities are replanted with native vegetation.

Wildlife. Implementation of the projects associated with the Proposed Action would have short-term, negligible to minor, indirect, adverse impacts on wildlife due to effects of construction noise and heavy equipment use. Most wildlife species in the construction vicinity would be expected to quickly recover once the construction noise and disturbances have ceased. Additionally, Niagara Falls AFS is heavily developed and aircraft operations are frequent, so wildlife currently inhabiting the project sites should be habituated to noise disturbances.

Within sites for Projects 3 (Joint Medical Facility), 5 (Flight Simulator Facility), 8 (Munitions Storage Igloo and M&I Facility), and 9 (EOD Range), the Proposed Action would have long-term, direct, negligible to minor adverse impacts on wildlife due to the permanent loss of habitat. NYSDEC has indicated that the installation's grassland habitat has regional importance for supporting a variety of grassland bird species, including numerous ground-nesting species such as the grasshopper sparrow and upland sandpiper (Niagara Falls ARS 1998b). Several grassland-associated bird species (see **Table 3-6**), reptilian species (e.g., eastern garter snake, eastern box turtle), and mammalian species (e.g., woodchuck, eastern cottontail rabbit, red fox, meadow vole, white-tailed deer, deer mouse) could have potential to occur within or use the sites for the projects; however, most of these sites are regularly mowed and provide only marginal habitat for most wildlife species.

Protected and Sensitive Species. No federally listed threatened or endangered species have been documented on Niagara Falls ARS during previous surveys conducted by USFWS in 1998, 2001, 2007, and 2008; therefore, no adverse effects on federally listed species would be expected from the Proposed Action. However, sites for Projects 3 (Joint Medical Facility), 5 (Flight Simulator Facility), 8 (Munitions Storage Igloo and M&I Facility), 9 (EOD Range), and 10 (Fill-in Ramp South of Hangar 707) could potentially provide habitat for certain state-listed threatened or endangered species, including the northern harrier, short-eared owl, upland sandpiper, grasshopper sparrow, and horned lark.

The northern harrier and short-eared owl have been previously observed in grassland habitats along the runways on the installation. USFWS-LGLFRO management plans for both species state that Niagara Falls ARS prefers to keep these species off of the installation due to bird/wildlife aircraft strike hazard (BASH) concerns. USFWS-LGLFRO determined that because the northern harrier and short-eared owl have such large territories, deterrence of these species or removal and relocation of these species (e.g., one or two individuals) to off-installation habitats would not be expected to have a significant impact on the populations of these species (Niagara Falls ARS 1999a, Niagara Falls ARS 1999b). Implementation of the projects associated with the Proposed Action would not be expected to result in adverse impacts on the northern harrier or short-eared owl.

Although no upland sandpiper nests have been documented on Niagara Falls ARS, repeated sightings of upland sandpipers during the breeding season suggest breeding activity occurs on Niagara Falls ARS. The last documented sightings of this species occurred in 2000, some of which were within the airfield to the south of proposed Project 10 (Fill-in Ramp South of Hangar 707). Although nesting with the Project

10 site is unlikely since the site is regularly mowed, a potential for upland sandpiper nesting within this grass strip does exist and it is recommended that filling of this area occur outside of the breeding season (i.e., May through July). Short-term, negligible, indirect, adverse impacts on this species could occur during construction activities due to temporary disturbances from increased noise and construction equipment use.

The 2001 USFWS inventory report concluded that limited sightings of the horned lark indicate infrequent, transient use by the species (Niagara Falls ARS 2001c). Therefore, breeding horned lark populations would not be expected to occur on Niagara Falls ARS and no direct impacts on this species would be expected from the Proposed Action. If transient horned larks are present during the time of proposed construction activities, short-term, negligible, indirect, adverse impacts on this species could occur due to temporary disturbances from increased noise and construction equipment use.

Grasshopper sparrow nesting is believed to occur within the airfield of Niagara Falls ARS (Niagara Falls ARS 2009f). Although nesting with the Project 10 site is unlikely since the site is regularly mowed and it is likely unsuitable nesting habitat since it is a very small patch of grassland, a potential for grasshopper sparrow nesting within this grass strip does exist and it is recommended that filling of this area occur outside of the breeding season (i.e., May through July). Short-term, negligible, indirect, adverse impacts on this species could occur during construction activities due to temporary disturbances from increased noise and construction equipment use.

Implementation of the Proposed Action would have short-term, negligible to minor, indirect, adverse impacts on migratory birds due to disturbances from construction noise and heavy equipment use. Most migratory birds in the construction vicinity would be expected to quickly recover once the construction noise and disturbances have ceased. Additionally, Niagara Falls ARS is heavily developed and aircraft operations are frequent; therefore, the migratory birds currently inhabiting the project sites should be habituated to noise disturbances.

Within sites for Projects 3 (Joint Medical Facility), 5 (Flight Simulator Facility), 8 (Munitions Storage Igloo and M&I Facility), 9 (EOD Range), and 10 (Fill-in Ramp South of Hangar 707), the Proposed Action would have long-term, direct, negligible to minor adverse impacts on migratory birds due to the permanent loss of habitat. NYSDEC has indicated that the installation's grassland habitat has regional importance for supporting a variety of grassland bird species, including numerous ground-nesting species such as the grasshopper sparrow and upland sandpiper (Niagara Falls ARS 1998b). Several migratory grassland-associated bird species (see **Table 3-6**), could have potential to occur within or use the sites proposed for the projects; however, most of these sites are regularly mowed and provide only marginal habitat for most migratory bird species. To avoid the incidental take of migratory bird nests, it is recommended that any vegetation disturbance, grading, or construction activities occurring for these projects be conducted outside of the breeding season, which generally occurs from May through July.

Critical Habitat. There is no USFWS-designated critical habitat within any of the project sites. Therefore, no impacts on critical habitat would be expected.

4.6.3 No Action Alternative

Under the No Action Alternative, existing conditions would remain as is and implementation of the projects associated with the Proposed Action would not occur. If the No Action Alternative were carried forward, there would be no associated change in or effects on biological resources at Niagara Falls ARS.

4.7 Socioeconomics and Environmental Justice

4.7.1 Evaluation Criteria

Socioeconomics. This section addresses the potential for direct and indirect impacts that projects associated with the Proposed Action could have on local or regional socioeconomics. Impacts on local or regional socioeconomics are evaluated according to their potential to stimulate the economy through the purchase of goods or services and increases in employment and population. Similarly, impacts are evaluated to determine if overstimulation of the economy (e.g., the construction industry's ability to sufficiently meet the demands of a project) could occur as a result of the Proposed Action.

Environmental Justice. Ethnicity, poverty status, and youth population data were examined at the city, county, and state level to determine if low-income, minority, or youth populations could be disproportionately affected by the Proposed Action.

4.7.2 Proposed Action

Socioeconomics. No significant effects on socioeconomics would be expected from implementation of the Proposed Action. Short-term, minor, direct and indirect, beneficial impacts would be expected as a result of construction expenditures. Niagara County contains approximately 6,000 construction workers, which collectively should be able to meet the demand of the Proposed Action. The use of local construction workers would produce increases in local sales volumes, payroll taxes, and the purchases of goods and services. The Proposed Action would not lead to major increases or decreases in the number of persons employed or stationed at Niagara Falls ARS; therefore, no significant effects on demographics would be expected.

Environmental Justice. Activities associated with the Proposed Action would occur within Niagara Falls ARS boundaries. Therefore, disproportionate impacts on minority or low-income populations would not be expected.

4.7.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. No impacts on socioeconomics would be expected as no jobs would be created from the Proposed Action, expenditures for goods and services to maintain the existing facilities would be minimal, and there would be no increase in tax revenue as a result of employee wages or sales receipts. Also, impacts on environmental justice would not occur as part of the No Action Alternative as Niagara Falls ARS would continue operating under current conditions.

4.8 Infrastructure

4.8.1 Evaluation Criteria

Effects on infrastructure are evaluated based on their potential for disruption or improvement of existing levels of service and additional needs for energy and water consumption, sanitary sewer and wastewater systems, and transportation patterns and circulation. Impacts might arise from physical changes to circulation, construction activities, introduction of construction-related traffic on local roads or changes in daily or peak-hour traffic volumes, and energy needs created by either direct or indirect workforce and population changes related to installation activities. An effect might be considered adverse if a proposed

action exceeded capacity of a utility. A proposed action could have a significant effect with respect to infrastructure if the following were to occur:

- Exceeded capacity of a utility
- A long-term interruption of the utility
- A violation of a permit condition
- A violation of an approved plan for that utility.

4.8.2 Proposed Action

Water Supply. Short-term, negligible, direct, adverse effects might occur during various phases of construction associated with the Proposed Action due to water shut-offs at various locations throughout the installation, but effects would be negligible in comparison to the long-term, beneficial effects. Implementation of the Proposed Action could have adverse effects from increased water use, but these increases would be minor in comparison with total installation water usage. Water supply lines from Niagara Falls and Wheatfield have adequate capacity and supply to accommodate water demands associated with the Proposed Action. Construction associated with the Proposed Action would use energy conservation fixtures and, therefore, long-term, negligible, indirect, beneficial effects on water supply would be expected as a result of the Proposed Action.

Sanitary Systems. Implementation of the Proposed Action would result in long-term, negligible, indirect, adverse effects from increases in sanitary sewer use, but these increases are likely to be minor when compared to installationwide water usage. Construction associated with the Proposed Action would use energy conservation fixtures and therefore, long-term, negligible, indirect, beneficial effects on sanitary systems would be expected as a result of the Proposed Action.

Natural Gas Systems. The main natural gas supply line enters the installation near the Main Gate, so no new major supply lines would be necessary. Minor increases in demand for natural gas would likely occur, but these increases would be minor when compared to total installationwide demand. No adverse impacts on natural gas systems would result from the Proposed Action.

Central Heating Systems. The Proposed Action would result in an increase in central heating power usage. It is assumed that current boiler capacity is adequate to meet the increased demand associated with the Proposed Action. No adverse impacts on central heating systems would result from the Proposed Action.

Electrical Systems. The Proposed Action would result in an increase in the electric usage on Niagara Falls ARS. The electrical power system, purchased through Niagara Mohawk and distributed through government-owned lines, would be able to accommodate the Proposed Action. The main power supply line enters the installation near the Main Gate, so no new transmission supply lines would be necessary. Construction associated with the Proposed Action would use energy-conservation fixtures and therefore, long-term, negligible, indirect, beneficial effects on electrical systems would be expected as a result of the Proposed Action.

Communication Systems. The Proposed Action would not result in a change in communication systems. No adverse effects on communication systems would result from the Proposed Action.

Transportation Network. Potential impacts on transportation and circulation are evaluated for disruption or improvement of current transportation patterns and systems, deterioration or improvement of traffic volume, and changes in existing levels of transportation safety. Impacts could arise from physical changes to circulation (e.g., closing, rerouting, or creating roads), construction activity, introduction of

construction-related traffic on local roads, or changes in daily or peak-hour traffic volumes increased by either direct or indirect work force and population changes related to facility activities. Impacts on roadway capacities would be significant if roads were forced to operate at or above their full design capacity. Short-term, minor, adverse, direct and indirect impacts on transportation systems would be anticipated during construction activities.

Solid Waste. In considering the basis for evaluating the significance of impacts on solid waste, several items are considered. These items include evaluating the degree to which the proposed construction projects could affect the existing solid waste management program and capacity of the area landfill. Solid waste generated from the proposed construction activities would consist of building materials such as solid pieces of concrete, metals (conduit, piping, and wiring), and lumber. Analysis of the impacts associated with implementation of the Proposed Action and other actions is based on the following assumptions (USACE 1976):

- Approximately 4 pounds of construction debris is generated for each square foot of floor area for new structures
- Approximately 1 pound of construction debris is generated for each square foot of new asphalt
- Approximately 92 pounds of demolition debris is generated for each square foot of floor area for old structures.

Table 4-6 presents the amount of MSW (tons) generated from the proposed construction activities using the assumptions detailed above. The landfill space required at the approved landfill used by the contractor would result in 3,397 tons for the Proposed Action. **Section 4.9** discusses hazardous materials and wastes associated with the Proposed Action.

4.8.3 No Action Alternative

Under the No Action Alternative, Niagara Falls ARS would not implement the Proposed Action, which would result in the continuation of existing conditions as described in **Section 3**. No direct changes in environmental effects would be expected on infrastructure.

4.9 Hazardous Materials and Waste

4.9.1 Evaluation Criteria

Impacts on hazardous materials and waste would be considered significant if the action resulted in noncompliance with applicable Federal, state, and USAF regulations, or increased the amounts of hazardous substances generated or procured beyond current Niagara Falls ARS waste management procedures and capacities. Impacts on the IRP would be considered significant if the action disturbed or created contaminated sites, resulting in adverse effects on human health or the environment.

4.9.2 Proposed Action

Hazardous Materials and Petroleum Products. Short-term, minor, adverse impacts would be expected. Construction and demolition activities would require the use of certain hazardous materials such as paints, welding gases, solvents, preservatives, and sealants. Construction equipment used during the Proposed Action would contain fuel, lubricating oils, hydraulic fluid, and coolants that could be regulated as hazardous materials if they spilled or leaked at any of the project sites. Prior to mobilization, all construction vehicles and equipment would be inspected to ensure a leak-free operation. Appropriate

Table 4-6. Projected Construction and Demolition Waste Generation

Construction/Demolition Project	Construction Area (ft ²)	Demolition Area (ft ²)	Asphalt Area (ft ²)	Waste (pounds)
Project 1 - Joint AFRC/ANG Wing HQ Facility	29,150	-	-	116,600
Project 2 - C-130 Flightline Operations Facility	53,582	28,036	289,576	3,083,216
Project 3 - Joint Medical Facility	25,353	3,519	25,236	450,396
Project 4 - Visitor's Quarters Parking Area	-	-	90,000 ¹	90,000
Project 5 - Flight Simulator Facility	11,312	-	-	45,248
Project 6 - Visitor's Quarters, Phase III	376,736	5,418	50,000	2,055,400
Project 7 - Visitor's Quarters, Phase IV ²				
Project 8 - Munitions Storage Igloo and M&I Facility	8,718	-	20,600	55,472
Project 9 - EOD Range	11,055	-	-	44,220
Project 10 - Fill-in Ramp South of Hangar 707	213,284	-	-	853,136
Total Waste (pounds)				6,793,688
Total Waste (tons)				3,397

Note:

A portion of the waste generated from these projects would be recycled and therefore diverted from disposal in a landfill.

Key:

¹ Although the Visitor's Quarters Parking Area would be constructed of pervious materials, for the purposes of this analysis, the solid waste multiplier for asphalt was calculated.

² The total demolition area for Project 7a (Visitor's Quarters, Phase IV, East-West Orientation) would be approximately 16,800 ft², with total waste for Projects 6 and 7a of 3,102,544 ft². The total waste generated by implementing the Proposed Action, including Project 7a would be 7,840,832 pounds (3,920 tons).

spill containment material would be kept on site. All fuels and other hazardous materials would be contained in the construction equipment or stored in appropriate containers and would be removed upon completion of the Proposed Action. It is anticipated that the quantity of products containing hazardous materials used during the Proposed Action would be minimal and their use would be of short duration. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with Federal, state, and local regulations and the Hazardous Materials Emergency Planning and Response Plan. Therefore, no long-term, direct or indirect, adverse impacts would be expected.

Hazardous and Petroleum Wastes. Short-term, minor, and long-term, negligible to minor, adverse impacts would be expected. It is anticipated that the quantity of hazardous wastes generated from proposed construction and demolition activities would be minor and would not be expected to exceed the capacities of existing hazardous waste disposal facilities. Hazardous wastes would be handled under the existing DOD RCRA-compliant waste management programs and, therefore, would not be expected to increase the risks of exposure to workers and installation personnel. Prior to commencement of construction activities, the contractor would be required to obtain the necessary construction permits. It is anticipated that operation and maintenance activities associated with the Proposed Action would result in a slight increase in hazardous waste generation at the installation. However, the long-term increase in hazardous waste would be minor and would not be expected to exceed the capacities of existing hazardous waste disposal facilities. The 914 AW would be responsible for the disposal of hazardous wastes in accordance with Federal, state, and local regulations and the Hazardous Waste Management Plan.

Lead-Based Paint. The buildings proposed for demolition could contain LBP. Sampling for LBP would occur prior to demolition and would be handled in accordance with the installation's Lead-Based Paint Management Plan and be disposed of at a hazardous waste disposal facility. Sampling, removal, and disposal of any LBP would be short-term in duration and would result in less than significant impacts. In accordance with the Lead-Based Paint Management Plan, all buildings would be surveyed prior to demolition and any identified LBP would be separated from the remainder of the demolition materials as required and remediated in accordance with Federal, state, and Air Force regulations.

No impacts would be expected during operation of the buildings proposed for construction under the Proposed Action. Specifications for proposed construction and USAF regulations prohibit the use of LBP for new construction.

Asbestos-Containing Materials. The buildings proposed for demolition could contain ACM. Sampling for ACM would occur prior to demolition and would be handled in accordance with the installation's Asbestos Management Plan and be disposed of at a permitted disposal site. Sampling, removal, and disposal of any ACM would be short-term in duration and would result in less than significant impacts. In accordance with the Asbestos Management Plan, all buildings would be surveyed prior to demolition and any identified asbestos would be separated from the remainder of the demolition materials as required and remediated in accordance with Federal, state, and Air Force regulations.

No impacts would be expected during operation of the buildings proposed for construction under the Proposed Action. USAF regulations restrict the use of ACM for new construction. AFI 32-1023 requires that a substitution study be conducted whenever the use of an ACM in construction, maintenance, or repair is considered. If it is determined that the ACM is superior in cost and performance characteristics, and has minimal actual or potential health hazards, then the ACM can be used. In all other cases non-ACM should be used.

Polychlorinated Biphenyls. The buildings proposed for demolition could contain light ballasts containing PCBs. The light fixtures within the buildings would be removed prior to demolition and would be handled in accordance with Federal and state regulations and the installation's Hazardous Waste Management Plan and is disposed of at a hazardous waste disposal facility. Sampling, removal, and disposal of any light ballast would be short-term in duration and would result in less than significant impacts. In addition, the proposed demolition projects could include the removal of pad-mounted transformers. Those identified as containing PCBs would be handled in accordance with Federal and state regulations and the installation's Hazardous Waste Management Plan and the PCBs would be disposed of at a hazardous waste disposal facility. Sampling, removal, and disposal of any PCBs would be short-term in duration and would result in less than significant impacts.

Installation Restoration Program. Short-term, negligible to minor, and adverse impacts could be expected from implementation of the Proposed Action. The Project 2 (C-130 Flightline Operations Facility) site would be in the vicinity of an active IRP site (IRP Site 13). Groundwater contamination at IRP Site 13 could be encountered during construction and demolition activities. Should contamination be encountered, the handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and Niagara Falls ARS management procedures. A health and safety plan would be prepared in accordance with OSHA requirements prior to commencement of construction activities.

There is also the potential to encounter contaminated soil. Project planning should include the potential need for sampling and subsequent remediation within the project area to account for the potential inadvertent discovery of contaminated soil. If it was determined that sampling was required, all soil sampling would be conducted prior to commencement of construction and demolition activities. If results

of the sampling were to indicate the presence of contamination, remediation efforts would take place prior to commencement of construction and demolition activities. The handling, storage, transportation, and disposal of hazardous substances would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and Niagara Falls management procedures. IRP infrastructure (e.g., monitoring wells, treatment systems, conveyance pipes) is present at the project site; therefore, project planning would include protection of IRP infrastructure to avoid disruption of clean-up activities and minimize potential impacts on IRP infrastructure. The four groundwater monitoring wells associated with IRP Site 13 that are on the Project 2 (C-130 Flightline Operations Facility) site would be relocated or closed with approval from the NYSDEC and an amendment to the existing NYSDEC 373 Corrective Action Permit. In addition, soil vapor could be present during and after construction activities. Mitigation measures, such as a soil vapor barrier, should be considered to prevent soil vapors from permeating into buildings.

No other IRP sites would be impacted by the projects associated with the Proposed Action. They are either within or near IRP sites that have achieved NFRAP status or are not in close proximity to active IRP sites.

4.9.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. There would be no soil disturbance and no risk of encountering hazardous substances. No construction would occur as planned under the Proposed Action. In general, there would be no change in or impacts on environmental restoration, or hazardous materials and wastes at Niagara Falls ARS if the Proposed Action was not implemented.

5. Cumulative and Other Potential Adverse Impacts

CEQ regulations stipulate that the cumulative effects analysis in an EA should consider the potential environmental effects resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR Part 1508.7). CEQ guidance in considering cumulative effects affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with a proposed action. The scope must consider other projects that coincide with the location and timetable of a proposed action and other actions. Cumulative effects analyses must also evaluate the nature of interactions among these actions (CEQ 1997).

5.1.1 Projects Identified for Potential Cumulative Effects

The scope of the cumulative effects analysis involves both timeframe and geographic extent in which effects could be expected to occur, and a description of what resources could potentially be cumulatively affected. For the purposes of this analysis, the temporal span of the Proposed Action is 6 years, which would encompass the construction period and beginning of operations. For most resources, the spatial area for consideration of cumulative effects is Niagara Falls ARS, though a larger area is considered for some resources (e.g., other projects outside the installation potentially affected by increased QD arcs).

Modifications to Runway 6-24. The Niagara Frontier Transportation Association (NFTA) plans to modify Runway 6-24 to comply with Runway Safety Area standards. The primary project included in this proposal is to shift the runway northeast. The runway shift would require moving the property fence, removing vertical obstructions (e.g., trees) along the approach and departure paths, relocating approximately 2,440 linear feet of Cayuga Creek, and minor taxiway pavement modifications. Other projects associated with runway modifications include the relocation and rehabilitation of Taxiway K and the acquisition of a 30-acre parcel east of Walmore Road across from the end of Runway 24.

An EA was prepared and a FONSI signed in 2009 (FAA 2009). The proposed modifications to Runway 6-24 are removed from the Proposed Action, so most adverse effects associated with construction activities would have little to no potential for cumulative effects when considered together. The most notable short-term and permanent adverse effects on environmental impacts identified in the EA would result from the relocation of 2,440 linear feet of Cayuga Creek and a 0.28-acre riparian emergent wetland. Mitigation would include constructing a new 1,950-foot streambed outside the Runway Safety Area with bioengineered shore erosion features and fish habitat enhancements. Another 200- to 300-foot section of Cayuga Creek downstream from the affected area might also undergo bioengineered erosion protection as mitigation. It was determined that these impacts would not be significant. Runway modifications are considered for potential cumulative effects because Project 8, the proposed Munitions Storage Igloo and M&I Facility, could impact the extended runway, and to determine if water resources could be cumulatively adversely affected as a result of several ongoing projects.

Expand Herbicide Applications and Relocate Dry Chemical Testing. The 914 AW proposes to expand areas for herbicide applications and to relocate the site used for annual fire truck dry chemical testing and the associated temporary containment system used to capture the dry chemical. EAs were prepared in 2005 and 2006 for herbicide applications and dry chemical testing (Niagara Falls ARS 2005b, Niagara Falls ARS 2006); the EA currently being prepared updates the former EAs. The following paragraphs describe the proposed herbicide applications and dry chemical testing in more detail. A full and detailed analysis of these actions is in draft form, so potential environmental effects as a result of this project are discussed generally for the purposes of this cumulative effects analysis. No significant environmental effects are anticipated from herbicide application or relocated dry chemical testing.

The 914 AW plans to expand herbicide application areas from 57.77 acres to 118.60 acres, an expansion area of 60.83 acres. Areas to be treated include the installation fenceline, railroad tracks, the overrun area of Runway 28 Right, and mowed lawns within the installation's improved areas. Railroad tracks outside the fenceline and parallel with Walmore Road would no longer be treated. Herbicides used would be consistent with those previously used, including Roundup Pro™ or Kleenup Pro™, Triamine®, AM-40, Barricade or equivalent, and Dimension Ultra or equivalent. All pesticides (and associated application equipment) would be handled, stored, mixed, applied, and disposed of in accordance with USEPA recommendations, material safety data sheet information, manufacturer labels, and the Niagara Falls ARS IPMP. Projects 2, 8, and 9 would remain untreated by existing and proposed herbicide applications. Projects 1 and 10 are proposed in areas that are currently treated by herbicide applications. The remaining projects (Projects 3, 4, 5, 6, and 7) are proposed in areas that would be affected by expanded herbicide applications. Therefore, expanded herbicide application operations are considered further in this cumulative effects analysis.

Dry chemical testing is conducted annually to ensure that equipment used to dispense dry chemical is functioning properly. Currently, testing is conducted south of Building 700, which is the former Fire Station. The 914 AW proposes to conduct annual dry chemical testing southeast of Building 821, which is the new Fire Station. Purple K is a material used to extinguish fires involving flammable liquids and gases and fire involving live electrical equipment. Purple K is a moderate irritant to the respiratory system and eyes and a mild irritant to the skin. Additionally, it contains small amounts of mineral silicates, which are sometimes listed as hazardous and have also been identified as a possible human carcinogen. Testing would be accomplished by spraying the chemical into a 50-foot, 20-inch round plastic tube temporary containment system with a high-efficiency particulate air filter attached to the closed end. Spent material would be collected and disposed of through the DRMO. Project 10, which is the closest in proximity, is approximately 340 feet south of the proposed dry chemical testing area. Given the closeness, the new location for dry chemical testing is considered further in this cumulative effects analysis.

Construct and Operate an Indoor Small Arms Range. The 914 AW plans to construct and operate a 21-firing point, live-fire, indoor small arms range. The facility would be constructed to satisfy certification requirements for the M-16 series rifle, M-9 pistol, M-11 pistol, M-870 shotgun, M-240B machine gun, and M-249 automatic rifle. The facility would be north and east of Building 426 on approximately 3 acres of land. An EA for this project was prepared in August 2010 (Niagara Falls ARS 2010). Short-term, minor, adverse effects associated with construction activities were identified; these construction-related effects would be limited to the construction site and immediately surrounding areas. Long-term, adverse effects on air quality from firing leaded ammunition (negligible to minor effect), on water resources from slight alterations of a wetland tributary (minor effect), and on vegetation and wildlife resources from the permanent loss of habitat (negligible to minor effects) were also identified. The small arms range would be approximately 950 feet from Project 4, the closest project in this Proposed Action, so there would be minimal potential for cumulative effects associated with construction activities. Since implementation of the Proposed Action has the potential for long-term, minor, adverse effects on biological resources, potential cumulative effects from the small arms range on these resources are considered in more detail.

Other Development in Niagara Falls Area. Niagara Falls is an urban area with ongoing development activity. The environmental effects of the projects analyzed in this EA would have little potential to interact with or result in cumulative effects with any other projects off the installation and the IAP. Therefore, potential cumulative effects associated with other development activities in the Niagara Falls area were not considered in detail in this EA.

5.1.2 Resource-Specific Cumulative Effects

Table 5-1 summarizes past actions, existing conditions, environmental effects of the Proposed Action, and environmental effects of other known actions on Niagara Falls ARS and IAP. All resources that were evaluated in detail in this EA are included in **Table 5-1**. Those resource areas that could experience cumulative effects are analyzed in more detail.

No significant adverse cumulative effects were identified in the cumulative effects analysis.

Air Quality. The Proposed Action would have a negligible contribution to cumulative effects on air quality. The combination of all projects could produce short-term, minor, adverse effects during construction activities. Construction-related emissions would last only during those activities and would not cumulatively be significant.

Noise. Project 9 of the Proposed Action would have an intermittent long-term, adverse effect on the noise environment while the EOD Range is in use. The ambient sound environment would continue to be dominated primarily by military and civilian aircraft and vehicle traffic. Cumulative effects would not be significant.

Land Use. The Proposed Action would not require or stimulate industrial, commercial, or residential development to support it. The Proposed Action does not have the potential to affect the overall trend or pattern of development around Niagara Falls ARS. No significant development projects were identified in the vicinity of Niagara Falls ARS. No cumulative impacts related to land use, overall zoning, and land management objectives were identified.

Safety. Long-term beneficial effects on safety were identified as a result of providing onsite EOD training (i.e., Project 9 of the Proposed Action), modifications to Runway 6-24, and conducting dry chemical testing to ensure the Fire Department's dry chemical equipment is in good working order.

Project 8 of the Proposed Action (i.e., munitions facility) is the closest project to the Runway 6-24 improvements. The actual runway improvements would be approximately 840 feet away from the new munitions facility and 640 feet outside the QD arcs associated with the new munitions facility. As part of the Runway 6-24 improvements, Cayuga Creek would be relocated closer to the boundaries of Niagara Falls ARS, but the relocated creek would still be 200 feet outside the QD arcs associated with the new munitions facility. Therefore, the Proposed Action would have a negligible cumulative effect on safety.

Table 5-1. Summary of Past Actions, Existing Conditions, the Proposed Action, and Known Future Actions

Resource Area	Past Actions	Existing Conditions	Proposed Action	Known Future Actions
Air Quality	Niagara Falls ARS is a basic nonattainment area for 8-hour O ₃ .	Niagara Falls ARS is registered as a minor source of air emissions and generates emissions from aircraft, vehicles, and buildings.	Short-term, minor, adverse effects would be expected from construction and demolition activities. Long-term, minor, adverse effects would be expected from the operation of boilers.	<i>Small Arms Range:</i> Short-term, minor, adverse effects are expected from construction activities. Long-term, negligible to minor, adverse effects are expected from firing leaded ammunition.
Noise	Ambient sound environment has been dominated by aircraft noise and activities common to a military installation.	Ambient sound environment is affected mainly by military and civilian aircraft and vehicle traffic.	Short-term, minor, adverse effects would be expected from construction and demolition activities. Long-term, moderate, adverse effects on the noise environment would be expected from Project 9 (operation of an EOD Range).	<i>All Construction Projects:</i> Short-term, minor, adverse effects are expected from construction activities. No long-term effects on the noise environment.
Land Use	Past development practices (conversion of forest to agriculture) has extensively modified land use.	Niagara Falls ARS strives to develop the installation through identification and consolidation of compatible activities.	Short-term, negligible, adverse effects would be expected during construction and demolition activities. The Proposed Action would be consistent with planned land uses. Some changes in land use designation would occur. Future development around Projects 8 and 9 would be constrained as a result of QD arcs.	<i>All Projects:</i> Future activities would modify existing land use but would not be expected to result in incompatible land uses.

Resource Area	Past Actions	Existing Conditions	Proposed Action	Known Future Actions
Safety	Niagara Falls ARS has abided by Federal health and safety regulations.	Niagara Falls ARS abides by Federal health and safety regulations.	<p>There would be a short-term increase in the risk to contractors during construction and demolition activities, particularly within existing QD arcs.</p> <p>Long-term, minor, beneficial effects would be expected from the removal of ACM and LBP in older buildings, by providing onsite EOD training, and by upgrading and modernizing munitions storage.</p>	<p><i>Modifications to Runway 6-24:</i> Long-term, beneficial effects would occur. Modifications to the runway would bring Runway 6-24 into compliance with Runway Safety Area standards, decrease BASH potential (as a result of relocation Cayuga Creek), increase maneuvering space for aircraft, and decrease vertical encroachment into the approach and departure vectors (as a result of acquiring the 30-acre parcel).</p> <p><i>Herbicide/Dry Chemical Testing:</i> Short-term, negligible to minor, adverse effects on safety could occur while herbicides are being applied. Long-term, beneficial effects on safety would be expected as a result of dry chemical testing by ensuring the Fire Department's Dry Chemical Equipment is in good working order.</p>

Resource Area	Past Actions	Existing Conditions	Proposed Action	Known Future Actions
Water and Soil Resources	Surface water, groundwater, wetlands, and soil resources have been modified from their original states by development activities.	Storm water discharge to Cayuga Creek is within permitted limits.	<p>Short-term, minor, adverse effects would be expected from construction activities.</p> <p>No adverse effects would be expected following implementation of BMPs to control sedimentation and erosion and storm water.</p> <p>No effects on wetlands or waters of the United States or the 100-year floodplain would be expected.</p>	<p><i>Small Arms Range:</i></p> <p>Short-term, minor, adverse effects could occur as a result construction activities.</p> <p>Long-term, minor, adverse effects could occur from slight alterations to a wetland tributary.</p> <p><i>Modifications to Runway 6-24:</i></p> <p>Short-term and permanent, minor, adverse effects on hydrologic characteristics from relocating 2,440 linear feet of Cayuga Creek. Short-term and permanent, minor, adverse effects on hydrologic characteristics from 0.28 acres of riparian emergent wetland. Short-term effects on water quality could occur. Long-term effects on hydrology and sediment transport would be minimized by mimicking the natural stream morphology in a 1,950-foot bioengineered streambed. Downstream portions might be mitigated with similar bioengineered erosion protection. Long-term, minor effects on the 100-year floodplain would occur as a result of converting 1.5 acres of grassland to impervious surfaces in the floodplain.</p>

Resource Area	Past Actions	Existing Conditions	Proposed Action	Known Future Actions
Biological Resources	The alteration of native vegetation and development activities has resulted in limited forested and grassy areas with diminished value to support species habitat and diversity at Niagara Falls ARS.	Installation operations impact wildlife habitat.	<p>Long-term, negligible to minor, direct, adverse effects would occur as a result of vegetation removal, particularly for Projects 3, 5, 8, and 9.</p> <p>Short-term, negligible to minor, adverse effects on wildlife could occur as a result of disturbance during construction.</p> <p>No impacts on state-listed or federally listed species would be expected.</p>	<p><i>Herbicide/Dry Chemical Testing:</i> Long-term, indirect, beneficial effects on native vegetation would be expected by the use of targeted herbicide on nonnative vegetation. Long-term, negligible, indirect, adverse effects on aquatic species could occur from herbicide application, if herbicides come in contact with aquatic species.</p> <p><i>Small Arms Range:</i> Short-term, minor, adverse effects could occur during construction activities.</p> <p>Long-term, negligible to minor, adverse effects would occur as a result of vegetation removal and the permanent loss of habitat.</p>
Infrastructure	Water supply, sanitary systems, natural gas, central heating, electricity, communications systems, transportation network, and solid waste management have been well developed at Niagara Falls ARS and surrounding areas.	Utilities and infrastructure systems are generally in good working condition, supporting the Niagara Falls ARS population.	No or negligible effects would be expected on infrastructure systems. Existing infrastructure is capable of supporting the Proposed Action.	<p><i>All Construction Projects:</i> Short-term, negligible, adverse effects could occur as utilities and infrastructures are upgraded during construction. No long-term, adverse effects are expected.</p>

Resource Area	Past Actions	Existing Conditions	Proposed Action	Known Future Actions
Sociology and Environmental Justice	Population of Niagara Falls has decreased over the past 20 years.	The top employment industry for Niagara Falls is educational, health, and social services.	Short-term, minor, beneficial effects would be expected from construction expenditures. No long-term socioeconomic effects or disproportionate effects on low-income or minority populations are expected.	<i>All Construction Projects:</i> Short-term, minor, beneficial effects are expected from construction expenditures. No long-term effects would occur because other projects would not result in personnel changes.
Hazardous Materials and Wastes	Hazardous wastes and materials, LBP, ACM, PCBs, and IRP sites occur at Niagara Falls ARS as a result of its historic use as a military installation.	Hazardous wastes and materials, LBP, ACM, PCBs, and IRP sites are managed in accordance with USAF and other applicable Federal, state, and local regulations.	Short-term, minor, adverse effects during construction activities could occur. Construction would require use of small quantities of hazardous materials and generate small quantities of hazardous wastes. Long-term, negligible to minor, adverse effects could occur from increased generation of hazardous and petroleum wastes. Short-term, minor, adverse effects could occur from encountering contaminated groundwater in the vicinity of IRP Site 13 during Project 2 construction.	<i>Herbicide/Dry Chemical Testing:</i> Short-term, negligible, adverse effects could occur during herbicide applications since herbicides would be treated as hazardous materials in the event of a spill.

Water and Soil Resources. Water quality of Cayuga Creek has historically been affected by land uses. Other projects identified in this cumulative effects analysis would result in adverse effects of Cayuga Creek, including alterations to a wetland tributary near the new small arms range on Niagara Falls ARS and the relocation of 2,440 linear feet of the creek for the modifications to Runway 6-24. Additionally, 0.28 acres of wetlands would be affected by Runway 6-24 modifications. However, the Proposed Action would have a negligible contribution to adverse cumulative effects on water and soil resources, assuming the use of BMPs to control sedimentation and erosion.

Based on the final design of the creek relocation, it is possible that Project 8 could be within the 100-year floodplain boundary and could impede the flow of floodwaters. Therefore, if the floodplain is recalculated to include Project 8, the Proposed Action could have long-term, moderate, adverse impacts on the 100-year floodplain.

Biological Resources. The Proposed Action (i.e., Projects 3, 5, 8, and 9) and the small arms range would result in vegetation removal. Cumulatively, this would be a negligible to minor, adverse effect considering the relatively small amount of vegetation that would be removed in comparison with how much is available in nearby areas. Herbicide applications would also remove vegetation, but it would target nonnative weed species, the removal of which could indirectly benefit native species.

Infrastructure. No cumulative effects on infrastructure have been identified. Utilities and infrastructure systems are expected to be able to accommodate new facilities and small increases in personnel.

Sociology and Environmental Justice. No cumulative effects on socioeconomics have been identified. The combination of all projects could produce short-term, minor, beneficial effects as a result of construction expenditures. Construction-related expenditures would last only during those activities and would not cumulatively be significant.

Hazardous Materials and Wastes. No cumulative effects on hazardous materials and wastes have been identified. The combination of all projects could produce short-term, minor, adverse effects during construction activities, but these would not be significant. Existing hazardous material and waste management plans would accommodate short- and long-term, minor increases in usage.

5.2 Unavoidable Adverse Effects

Unavoidable adverse impacts would result from implementation of the Proposed Action. None of these impacts would be significant.

Geological Resources. Under the Proposed Action, construction activities, such as grading, excavating, and trenching of the ground, would result in some minor soil disturbance. Implementation of BMPs during construction would limit environmental consequences resulting from construction activities. Standard erosion-control means would also reduce environmental consequences related to these characteristics. Although unavoidable, impacts on soils at the installation are not considered significant.

Infrastructure. Solid waste would be generated as a result of construction and demolition activities. This is an unavoidable but minor adverse impact that can be mitigated to a certain extent by possible recycling opportunities.

Hazardous Wastes and Materials. Products containing hazardous materials would be procured and used during the proposed facilities construction projects. It is anticipated that the quantity of products containing hazardous materials used during the construction activities would be minimal and their use would be of short duration. Contractors would be responsible for the management of hazardous

materials, which would be handled in accordance with Federal and state regulations. Contractors must report use of hazardous materials. It is anticipated that the quantity of hazardous wastes generated from proposed construction activities would be negligible. Contractors would be responsible for the disposal of hazardous wastes in accordance with Federal and state laws and regulations, and the Hazardous Waste Management Plan. The potential for construction accidents or spills during fuel handling are unavoidable risks associated with the Proposed Action.

Energy Resources. The Proposed Action would require the use of fossil fuels, a nonrenewable natural resource. The use of nonrenewable resources in construction activities, and subsequently with the operations of facilities and additional aircraft and helicopters, would be unavoidable. Relatively small amounts of energy resources would be committed to the Proposed Action and are not considered significant.

5.3 Compatibility of the Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

Environmental effects of the Proposed Action would occur entirely within the boundaries of Niagara Falls ARS. The proposed projects have been sited according to existing land use zones. Consequently, construction activities would not be in conflict with installation land use policies or objectives. The Proposed Action would not conflict with any applicable off-installation land use ordinances or designated clear zones.

5.4 Relationship Between the Short-term Use of the Environment and Long-term Productivity

Short-term uses of the biophysical components of the human environment include direct impacts, usually related to construction activities, that occur over a period of less than 5 years. Long-term uses of the human environment include those impacts that occur over a period of more than 5 years, including permanent resource loss.

This EA identifies potential short-term, adverse effects on the natural environment as a result of construction activities. These potential adverse effects include noise emissions, air emissions, soil erosion, storm water runoff into surface water, and increased traffic. Proposed construction activities would be expected to increase the long-term productivity of Niagara Falls ARS by complying with BRAC recommendations, consolidating similar functions, and removing old and outdated facilities and replacing them with modern and efficient facilities.

5.5 Irreversible and Irretrievable Commitments of Resources

An irreversible or irretrievable commitment of resources refers to impacts on or losses to resources that cannot be reversed or recovered, even after an activity has ended and facilities have been decommissioned. A commitment of resources is related to use or destruction of nonrenewable resources, and effects that such a loss will have on future generations. For example, if prime farmland is developed there would be a permanent loss of agricultural productivity. The Proposed Action involves the irreversible and irretrievable commitment of material resources and energy, land resources, landfill space, and human resources. The impacts on these resources would be permanent.

Material Resources. Material resources irretrievably used for the Proposed Action include steel, concrete, and other building materials. Such materials are not in short supply and would not be expected

to limit other unrelated construction activities. The irretrievable use of material resources would not be considered significant.

Energy Resources. Energy resources used for the Proposed Action would be irretrievably lost. These include petroleum-based products (e.g., gasoline and diesel) and electricity. During construction, gasoline and diesel fuel would be used for the operation of construction vehicles. Consumption of these energy resources would not place a significant demand on their availability in the region. Therefore, no significant impacts would be expected.

Landfill Space. The generation of construction and demolition debris and subsequent disposal of that debris in a landfill would be an irretrievable adverse impact. Construction contractors would be expected to recycle at least 42 percent of the debris generated by 2011; the solid waste diversion rate would increase by 2 percent every year until it reaches 50 percent in 2015. Construction and demolition debris diversion rates are 52 percent in 2011, increasing by 2 percent every year until reaching 60 percent in 2015. If a greater percentage is recycled, then irretrievable impacts on landfills would be reduced. There are numerous rubble landfills and construction and demolition processing facilities that could handle the waste generated. However, any waste that is generated by the Proposed Action that is disposed of in a landfill would be considered an irretrievable loss of that landfill space.

Human Resources. The use of human resources for construction is considered an irretrievable loss only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities, and is considered beneficial.

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APPENDIX A

PHOTOGRAPHS OF PROPOSED PROJECT SITES

Appendix A

Photographs of Proposed Project Sites



**Project 1. Joint AFRC/ANG Wing
Headquarters Facility**



Project 2. C-130 Flightline Operations Facility



Project 3. Joint Medical Center



Project 4. Visitor's Quarters Parking Area



Project 5. Flight Simulator



Project 6. Visitor's Quarters Phase III



Project 7. Visitor's Quarters Phase IV



Project 8. Munitions Storage Igloo and M&I Facility



Project 9. EOD Range



Project 10. Fill-in Ramp South of Hangar 707

APPENDIX B

APPLICABLE LAWS, REGULATIONS, POLICIES, AND PLANNING CRITERIA

Appendix B

Applicable Laws, Regulations, Policies, and Planning Criteria

When considering the affected environment, the various physical, biological, economic, and social environmental factors must be considered. In addition to the National Environmental Policy Act (NEPA), there are other environmental laws and Executive Orders (EOs) to be considered when preparing environmental analyses. These laws are summarized below.

NOTE: This is not a complete list of all applicable laws, regulations, policies, and planning criteria potentially applicable to documents, however, it does provide a general summary for use as a reference.

Noise

Federal and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. The U.S. Department of Housing and Urban Development (HUD), in coordination with the Department of Defense (DOD) and the FAA, has established criteria for acceptable noise levels for aircraft operations relative to various types of land use.

The U.S. Army, through AR 200-1, *Environmental Protection and Enhancement*, implements Federal laws concerning environmental noise from U.S. Army activities. The USAF's Air Installation Compatible Use Zone (AICUZ) Program, (AFI 32-7063), provides guidance to air bases and local communities in planning land uses compatible with airfield operations. The AICUZ program describes existing aircraft noise and flight safety zones on and near USAF installations.

Land Use

The term "land use" refers to real property classifications that indicate either natural conditions or the types of human activities occurring on a defined parcel of land. In many cases, land use descriptions are codified in local zoning laws. However, there is no nationally recognized convention or uniform terminology for describing land use categories.

Land use planning in the USAF is guided by *Land Use Planning Bulletin, Base Comprehensive Planning* (HQ USAF/LEEVS, August 1, 1986). This document provides for the use of 12 basic land use types found on a USAF installation. In addition, land use guidelines established by the HUD and based on findings of the Federal Interagency Committee on Noise (FICON) are used to recommend acceptable levels of noise exposure for land use. The U.S. Army uses the 12 land use types for installation land use planning, and these land use types roughly parallel those employed by municipalities in the civilian sector.

Air Quality

The Clean Air Act (CAA) of 1970, and Amendments of 1977 and 1990, recognizes that increases in air pollution result in danger to public health and welfare. To protect and enhance the quality of the Nation's air resources, the CAA authorizes the U.S. Environmental Protection Agency (USEPA) to set six National Ambient Air Quality Standards (NAAQS) which regulate carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter pollution emissions. The CAA seeks to reduce or eliminate the creation of pollutants at their source, and designates this responsibility to state and local governments. States are directed to utilize financial and technical assistance and leadership from the Federal

government to develop implementation plans to achieve NAAQS. Geographic areas are officially designated by the USEPA as being in attainment or nonattainment for pollutants in relation to their compliance with NAAQS. Geographic regions established for air quality planning purposes are designated as Air Quality Control Regions (AQCRs). Pollutant concentration levels are measured at designated monitoring stations within the AQCR. An area with insufficient monitoring data is designated as unclassified. Section 309 of the CAA authorizes USEPA to review and comment on impact statements prepared by other agencies.

An agency should consider what effect an action might have on NAAQS due to short-term increases in air pollution during construction and long-term increases resulting from changes in traffic patterns. For actions in attainment areas, a Federal agency could also be subject to USEPA's Prevention of Significant Deterioration (PSD) regulations. These regulations apply to new major stationary sources and modifications to such sources. Although few agency facilities will actually emit pollutants, increases in pollution can result from a change in traffic patterns or volume. Section 118 of the CAA waives Federal immunity from complying with the CAA and states all Federal agencies will comply with all Federal- and state-approved requirements.

The General Conformity Rule requires that any Federal action meet the requirements of a State Implementation Plan (SIP) or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS.

The General Conformity Rule applies only to actions in nonattainment or maintenance areas and considers both direct and indirect emissions. The rule applies only to Federal actions that are considered "regionally significant" or where the total emissions from the action meet or exceed the *de minimis* thresholds presented in 40 CFR 93.153. An action is regionally significant when the total nonattainment pollutant emissions exceed 10 percent of the AQCR's total emissions inventory for that nonattainment pollutant. If a Federal action does not meet or exceed the *de minimis* thresholds and is not considered regionally significant, then a full Conformity Determination is not required.

Health and Safety

Human health and safety relates to workers' health and safety during demolition or construction of facilities, or applies to work conditions during operations of a facility that could expose workers to conditions that pose a health or safety risk. The Federal Occupational Safety and Health Administration (OSHA) issues standards to protect persons from such risks, and the DOD and state and local jurisdictions issue guidance to comply with these OSHA standards. Safety also can refer to safe operations of aircraft or other equipment.

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, implements Air Force Policy Directive (AFPD) 91-3, *Occupational Safety and Health*, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet Federal safety and health requirements.

AFI 91-202, *USAF Mishap Prevention Program*, implements AFPD 91-2, *Safety Programs*. It establishes mishap prevention program requirements (including the Bird/Wildlife Aircraft Strike Hazard [BASH] Program), assigns responsibilities for program elements, and contains program management information.

Geological Resources

Recognizing that millions of acres per year of prime farmland are lost to development, Congress passed the Farmland Protection Policy Act to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland (7 Code of Federal Regulations [CFR] Part 658). Prime farmland is described as soils that have a combination of soil and landscape properties that make them highly suitable for cropland, such as high inherent fertility, good water-holding capacity, and deep or thick effective rooting zones, and that are not subject to periodic flooding. Under the Farmland Protection Policy Act, agencies are encouraged to conserve prime or unique farmlands when alternatives are practicable. Some activities that are not subject to the Farmland Protection Policy Act include Federal permitting and licensing, projects on land already in urban development or used for water storage, construction for national defense purposes, or construction of new minor secondary structures such as a garage or storage shed.

Water Resources

The Clean Water Act (CWA) of 1977 is an amendment to the Federal Water Pollution Control Act of 1972, is administered by USEPA, and sets the basic structure for regulating discharges of pollutants into U.S. waters. The CWA requires USEPA to establish water quality standards for specified contaminants in surface waters and forbids the discharge of pollutants from a point source into navigable waters without a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits are issued by USEPA or the appropriate state if it has assumed responsibility. Section 404 of the CWA establishes a Federal program to regulate the discharge of dredge and fill material into waters of the United States. Section 404 permits are issued by the U.S. Army Corps of Engineers (USACE). Waters of the United States include interstate and intrastate lakes, rivers, streams, and wetlands that are used for commerce, recreation, industry, sources of fish, and other purposes. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Each agency should consider the impact on water quality from actions such as the discharge of dredge or fill material into U.S. waters from construction, or the discharge of pollutants as a result of facility occupation.

Section 303(d) of the CWA requires states and USEPA to identify waters not meeting state water quality standards and to develop Total Maximum Daily Loads (TMDLs). A TMDL is the maximum amount of a pollutant that a waterbody can receive and still be in compliance with state water quality standards. After determining TMDLs for impaired waters, states are required to identify all point and nonpoint sources of pollution in a watershed that are contributing to the impairment and to develop an implementation plan that will allocate reductions to each source to meet the state standards. The TMDL program is currently the Nation's most comprehensive attempt to restore and improve water quality. The TMDL program does not explicitly require the protection of riparian areas. However, implementation of the TMDL plans typically calls for restoration of riparian areas as one of the required management measures for achieving reductions in nonpoint source pollutant loadings.

The USEPA issued a Final Rule for the CWA concerning technology-based Effluent Limitations Guidelines and New Source Performance Standards for the Construction and Development point source category. All NPDES storm water permits issued by the USEPA or states must incorporate requirements established in the Final Rule. As of February 1, 2010, all new construction sites are required to meet the non-numeric effluent limitations and design, install, and maintain effective erosion and sedimentation controls. In addition, construction site owners and operators that disturb 1 or more acres of land are required to use best management practices (BMPs) to ensure that soil disturbed during construction activities does not pollute nearby water bodies. Effective August 1, 2011, construction activities disturbing 20 or more acres must comply with the numeric effluent limitation for turbidity in addition to the non-numeric effluent limitations. The maximum daily turbidity limitation is 280 nephelometric

turbidity units (ntu). On February 2, 2014, construction site owners and operators that disturb 10 or more acres of land are required to monitor discharges to ensure compliance with effluent limitations as specified by the permitting authority. Construction site owners are encouraged to phase ground-disturbing activities to limit the applicability of the monitoring requirements and the turbidity limitation. The USEPA's limitations are based on its assessment of what specific technologies can reliably achieve. Permittees can select management practices or technologies that are best suited for site-specific conditions.

The Coastal Zone Management Act (CZMA) of 1972 declares a national policy to preserve, protect, and develop, and, where possible, restore or enhance the resources of the Nation's coastal zone. The coastal zone refers to the coastal waters and the adjacent shorelines, including islands, transitional and intertidal areas, salt marshes, wetlands, and beaches, and includes the Great Lakes. The CZMA encourages states to exercise their full authority over the coastal zone through the development of land and water use programs in cooperation with Federal and local governments. States may apply for grants to help develop and implement management programs to achieve wise use of the land and water resources of the coastal zone. Development projects affecting land or water use or natural resources of a coastal zone must ensure the project is, to the maximum extent practicable, consistent with the state's coastal zone management program.

The Safe Drinking Water Act (SDWA) of 1974 establishes a Federal program to monitor and increase the safety of all commercially and publicly supplied drinking water. Congress amended the SDWA in 1986, mandating dramatic changes in nationwide safeguards for drinking water and establishing new Federal enforcement responsibility on the part of USEPA. The 1986 amendments to the SDWA require USEPA to establish Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals (MCLGs), and Best Available Technology (BAT) treatment techniques for organic, inorganic, radioactive, and microbial contaminants; and turbidity. MCLGs are maximum concentrations below which no negative human health effects are known to exist. The 1996 amendments set current Federal MCLs, MCLGs, and BATs for organic, inorganic, microbiological, and radiological contaminants in public drinking water supplies.

The Wild and Scenic Rivers Act of 1968 provides for a wild and scenic river system by recognizing the remarkable values of specific rivers of the Nation. These selected rivers and their immediate environment are preserved in a free-flowing condition, without dams or other construction. The policy not only protects the water quality of the selected rivers but also provides for the enjoyment of present and future generations. Any river in a free-flowing condition is eligible for inclusion, and can be authorized as such by an Act of Congress, an act of state legislature, or by the Secretary of the Interior upon the recommendation of the governor of the state(s) through which the river flows.

EO 11988, *Floodplain Management* (May 24, 1977), directs agencies to consider alternatives to avoid adverse effects and incompatible development in floodplains. An agency may locate a facility in a floodplain if the head of the agency finds there is no practicable alternative. If it is found there is no practicable alternative, the agency must minimize potential harm to the floodplain, and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted floodproofing and flood protection to include elevating structures above the base flood level rather than filling in land.

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* (October 5, 2009), directed the USEPA to issue guidance on Section 438 of the Energy Independence and Security Act (EISA). The EISA establishes into law new storm water design requirements for Federal construction projects that disturb a footprint of greater than 5,000 square feet of land. Under these requirements, predevelopment site hydrology must be maintained or restored to the maximum extent technically feasible with respect to temperature, rate, volume, and duration of flow. Predevelopment hydrology

would be calculated and site design would incorporate storm water retention and reuse technologies to the maximum extent technically feasible. Post-construction analyses will be conducted to evaluate the effectiveness of the as-built storm water reduction features. These regulations are applicable to DOD Unified Facilities Criteria. Additional guidance is provided in the USEPA's *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*.

Biological Resources

The Endangered Species Act (ESA) of 1973 establishes a Federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. The ESA specifically charges Federal agencies with the responsibility of using their authority to conserve threatened and endangered species. All Federal agencies must ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction of critical habitat for these species, unless the agency has been granted an exemption. The Secretary of the Interior, using the best available scientific data, determines which species are officially endangered or threatened, and the U.S. Fish and Wildlife Service (USFWS) maintains the list. A list of Federal endangered species can be obtained from the Endangered Species Division, USFWS (703-358-2171). States might also have their own lists of threatened and endangered species which can be obtained by calling the appropriate State Fish and Wildlife office. Some species also have laws specifically for their protection (e.g., Bald Eagle Protection Act).

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements treaties and conventions between the United States, Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Unless otherwise permitted by regulations, the MBTA makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture, or kill; possess; offer to or sell, barter, purchase, or deliver; or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. The MBTA also makes it unlawful to ship, transport, or carry from one state, territory, or district to another; or through a foreign country, any bird, part, nest, or egg that was captured, killed, taken, shipped, transported, or carried contrary to the laws from where it was obtained; and import from Canada any bird, part, nest, or egg obtained contrary to the laws of the province from which it was obtained. The U.S. Department of the Interior has authority to arrest, with or without a warrant, a person violating the MBTA.

EO 11514, *Protection and Enhancement of Environmental Quality* (March 5, 1970), states that the President, with assistance from the Council on Environmental Quality (CEQ), will lead a national effort to provide leadership in protecting and enhancing the environment for the purpose of sustaining and enriching human life. Federal agencies are directed to meet national environmental goals through their policies, programs, and plans. Agencies should also continually monitor and evaluate their activities to protect and enhance the quality of the environment. Consistent with NEPA, agencies are directed to share information about existing or potential environmental problems with all interested parties, including the public, in order to obtain their views.

EO 11990, *Protection of Wetlands* (May 24, 1977), directs agencies to consider alternatives to avoid adverse effects and incompatible development in wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands.

EO 13186, *Conservation of Migratory Birds* (January 10, 2001), creates a more comprehensive strategy for the conservation of migratory birds by the Federal government. EO 13186 provides a specific framework for the Federal government's compliance with its treaty obligations to Canada, Mexico, Russia, and Japan. EO 13186 provides broad guidelines on conservation responsibilities and requires the development of more detailed guidance in a Memorandum of Understanding (MOU). EO 13186 will be coordinated and implemented by the USFWS. The MOU will outline how Federal agencies will promote conservation of migratory birds. EO 13186 requires the support of various conservation planning efforts already in progress; incorporation of bird conservation considerations into agency planning, including NEPA analyses; and reporting annually on the level of take of migratory birds.

Cultural Resources

The American Indian Religious Freedom Act of 1978 and Amendments of 1994 recognize that freedom of religion for all people is an inherent right, and traditional American Indian religions are an indispensable and irreplaceable part of Indian life. It also recognized the lack of Federal policy on this issue and made it the policy of the United States to protect and preserve the inherent right of religious freedom for Native Americans. The 1994 Amendments provide clear legal protection for the religious use of peyote cactus as a religious sacrament. Federal agencies are responsible for evaluating their actions and policies to determine if changes should be made to protect and preserve the religious cultural rights and practices of Native Americans. These evaluations must be made in consultation with native traditional religious leaders.

The Archaeological Resource Protection Act (ARPA) of 1979 protects archaeological resources on public and American Indian lands. It provides felony-level penalties for the unauthorized excavation, removal, damage, alteration, or defacement of any archaeological resource, defined as material remains of past human life or activities which are at least 100 years old. Before archaeological resources are excavated or removed from public lands, the Federal land manager must issue a permit detailing the time, scope, location, and specific purpose of the proposed work. ARPA also fosters the exchange of information about archaeological resources between governmental agencies, the professional archaeological community, and private individuals. ARPA is implemented by regulations found in 43 CFR Part 7.

The National Historic Preservation Act (NHPA) of 1966 sets forth national policy to identify and preserve properties of state, local, and national significance. The NHPA establishes the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Officers (SHPOs), and the National Register of Historic Places (NRHP). The ACHP advises the President, Congress, and Federal agencies on historic preservation issues. Section 106 of the NHPA directs Federal agencies to take into account effects of their undertakings (actions and authorizations) on properties included in or eligible for the NRHP. Section 110 sets inventory, nomination, protection, and preservation responsibilities for federally owned cultural properties. Section 106 of the act is implemented by regulations of the ACHP, 36 CFR Part 800. Agencies should coordinate studies and documents prepared under Section 106 with NEPA where appropriate. However, NEPA and NHPA are separate statutes and compliance with one does not constitute compliance with the other. For example, actions which qualify for a categorical exclusion under NEPA might still require Section 106 review under NHPA. It is the responsibility of the agency official to identify properties in the area of potential effects, and whether they are included or eligible for inclusion in the NRHP. Section 110 of the NHPA requires Federal agencies to identify, evaluate, and nominate historic property under agency control to the NRHP.

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 establishes rights of American Indian tribes to claim ownership of certain "cultural items," defined as Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony, held or controlled by Federal agencies. Cultural items discovered on Federal or tribal lands are, in order of primacy, the property of

lineal descendants, if these can be determined, and then the tribe owning the land where the items were discovered or the tribe with the closest cultural affiliation with the items. Discoveries of cultural items on Federal or tribal land must be reported to the appropriate American Indian tribe and the Federal agency with jurisdiction over the land. If the discovery is made as a result of a land use, activity in the area must stop and the items must be protected pending the outcome of consultation with the affiliated tribe.

EO 11593, *Protection and Enhancement of the Cultural Environment* (May 13, 1971), directs the Federal government to provide leadership in the preservation, restoration, and maintenance of the historic and cultural environment. Federal agencies are required to locate and evaluate all Federal sites under their jurisdiction or control which might qualify for listing on the NRHP. Agencies must allow the ACHP to comment on the alteration, demolition, sale, or transfer of property which is likely to meet the criteria for listing as determined by the Secretary of the Interior in consultation with the SHPO. Agencies must also initiate procedures to maintain federally owned sites listed on the NRHP.

EO 13007, *Indian Sacred Sites* (May 24, 1996), provides that agencies managing Federal lands, to the extent practicable, permitted by law, and not inconsistent with agency functions, shall accommodate American Indian religious practitioners' access to and ceremonial use of American Indian sacred sites, shall avoid adversely affecting the physical integrity of such sites, and shall maintain the confidentiality of such sites. Federal agencies are responsible for informing tribes of proposed actions that could restrict future access to or ceremonial use of, or adversely affect the physical integrity of, sacred sites.

EO 13175, *Consultation and Coordination with Indian Tribal Governments* (November 6, 2000), was issued to provide for regular and meaningful consultation and collaboration with Native American tribal officials in the development of Federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Native American tribes. EO 13175 recognizes the following fundamental principles: Native American tribes exercise inherent sovereignty over their lands and members, the United States government has a unique trust relationship with Native American tribes and deals with them on a government-to-government basis, and Native American tribes have the right to self-government and self-determination.

EO 13287, *Preserve America* (March 3, 2003), orders Federal agencies to take a leadership role in protection, enhancement, and contemporary use of historic properties owned by the Federal government, and promote intergovernmental cooperation and partnerships for preservation and use of historic properties. EO 13287 established new accountability for agencies with respect to inventories and stewardship.

Socioeconomics and Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994), directs Federal agencies to make achieving environmental justice part of their mission. Agencies must identify and address the adverse human health or environmental effects that its activities have on minority and low-income populations, and develop agencywide environmental justice strategies. The strategy must list "programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations, ensure greater public participation, improve research and data collection relating to the health of and environment of minority populations and low-income populations, and identify differential patterns of consumption of natural resources among minority populations and low-income populations." A copy of the strategy and progress reports must be provided to the Federal Working Group on Environmental Justice. Responsibility for compliance with EO 12898 is with each Federal agency.

Hazardous Materials and Waste

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes USEPA to respond to spills and other releases of hazardous substances to the environment, and authorizes the National Oil and Hazardous Substances Pollution Contingency Plan. CERCLA also provides a Federal “Superfund” to respond to emergencies immediately. Although the “Superfund” provides funds for cleanup of sites where potentially responsible parties cannot be identified, USEPA is authorized to recover funds through damages collected from responsible parties. This funding process places the economic burden for cleanup on polluters.

The Pollution Prevention Act (PPA) of 1990 encourages manufacturers to avoid the generation of pollution by modifying equipment and processes; redesigning products; substituting raw materials; and making improvements in management techniques, training, and inventory control. Consistent with pollution prevention principles, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (January 24, 2007 [revoking EO 13148]), sets a goal for all Federal agencies to promote environmental practices, including acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-content products; and use of paper of at least 30 percent post-consumer fiber content. In addition, EO 13423 sets a goal that requires Federal agencies to ensure that they reduce the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of; increase diversion of solid waste, as appropriate; and maintain cost-effective waste prevention and recycling programs at their facilities. Additionally, in *Federal Register* Volume 58 Number 18 (January 29, 1993), CEQ provides guidance to Federal agencies on how to “incorporate pollution prevention principles, techniques, and mechanisms into their planning and decisionmaking processes and to evaluate and report those efforts, as appropriate, in documents pursuant to NEPA.”

The Resource Conservation and Recovery Act (RCRA) of 1976 is an amendment to the Solid Waste Disposal Act. RCRA authorizes USEPA to provide for “cradle-to-grave” management of hazardous waste and sets a framework for the management of nonhazardous municipal solid waste. Under RCRA, hazardous waste is controlled from generation to disposal through tracking and permitting systems, and restrictions and controls on the placement of waste on or into the land. Under RCRA, a waste is defined as hazardous if it is ignitable, corrosive, reactive, toxic, or listed by USEPA as being hazardous. With the Hazardous and Solid Waste Amendments (HSWA) of 1984, Congress targeted stricter standards for waste disposal and encouraged pollution prevention by prohibiting the land disposal of particular wastes. The HSWA amendments strengthen control of both hazardous and nonhazardous waste and emphasize the prevention of pollution of groundwater.

The Superfund Amendments and Reauthorization Act (SARA) of 1986 mandates strong clean-up standards and authorizes USEPA to use a variety of incentives to encourage settlements. Title III of SARA authorizes the Emergency Planning and Community Right to Know Act (EPCRA), which requires facility operators with “hazardous substances” or “extremely hazardous substances” to prepare comprehensive emergency plans and to report accidental releases. If a Federal agency acquires a contaminated site, it can be held liable for cleanup as the property owner/operator. A Federal agency can also incur liability if it leases a property, as the courts have found lessees liable as “owners.” However, if the agency exercises due diligence by conducting a Phase I Environmental Site Assessment, it can claim the “innocent purchaser” defense under CERCLA. According to Title 42 United States Code (U.S.C.) 9601(35), the current owner/operator must show it undertook “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice” before buying the property to use this defense.

The Toxic Substance Control Act (TSCA) of 1976 consists of four titles. Title I established requirements and authorities to identify and control toxic chemical hazards to human health and the environment.

TSCA authorized USEPA to gather information on chemical risks, require companies to test chemicals for toxic effects, and regulate chemicals with unreasonable risk. TSCA also singled out polychlorinated biphenyls (PCBs) for regulation, and, as a result, PCBs are being phased out. PCBs are persistent when released into the environment and accumulate in the tissues of living organisms. They have been shown to cause adverse health effects on laboratory animals and could cause adverse health effects in humans. TSCA and its regulations govern the manufacture, processing, distribution, use, marking, storage, disposal, clean-up, and release reporting requirements for numerous chemicals like PCBs. TSCA Title II provides statutory framework for "Asbestos Hazard Emergency Response," which applies only to schools. TSCA Title III, "Indoor Radon Abatement," states indoor air in buildings of the United States should be as free of radon as the outside ambient air. Federal agencies are required to conduct studies on the extent of radon contamination in buildings they own. TSCA Title IV, "Lead Exposure Reduction," directs Federal agencies to "conduct a comprehensive program to promote safe, effective, and affordable monitoring, detection, and abatement of lead-based paint and other lead exposure hazards." Further, any Federal agency having jurisdiction over a property or facility must comply with all Federal, state, interstate, and local requirements concerning lead-based paint.

Energy

EO 13514, *Federal Leadership In Environmental, Energy, And Economic Performance* (dated October 5, 2009), directs Federal agencies to improve water use efficiency and management; implement high performance sustainable Federal building design, construction, operation and management; and advance regional and local integrated planning by identifying and analyzing impacts from energy usage and alternative energy sources. EO 13514 also directs Federal agencies to prepare and implement a Strategic Sustainability Performance Plan to manage its greenhouse gas emissions, water use, pollution prevention, regional development and transportation planning, sustainable building design and promote sustainability in its acquisition of goods and services. Section 2(g) requires new construction, major renovation, or repair and alteration of buildings to comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. The CEQ regulations at 40 CFR 1502.16(e) directs agencies to consider the energy requirements and conservation potential of various alternatives and mitigation measures.

Section 503(b) of EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, instructs Federal agencies to conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. EO 13423 sets goals in energy efficiency, acquisition, renewable energy, toxic chemical reduction, recycling, sustainable buildings, electronics stewardship, fleets, and water conservation. Sustainable design measures such as the use of "green" technology (e.g., photovoltaic panels, solar collection, heat recovery systems, wind turbines, green roofs, and habitat-oriented storm water management) would be incorporated where practicable.

Distribution List for the Draft and Final EA

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Comments on the Draft EA were received from the New York State Department of Environmental Conservation; Town of Niagara Falls; the New York State Office of Parks, Recreation, and Historic Preservation; and the Niagara Frontier Transportation Authority. Comment letters are presented in the following pages.

New York State Department of Environmental Conservation

Division of Environmental Permits, Region 9

270 Michigan Avenue, Buffalo, New York, 14203-2915

Phone: (716) 851-7165 • Fax: (716) 851-7168

Website: www.dec.ny.gov



Joe Martens
Commissioner

June 3, 2011

Mr. Bruce Ramo
HDR
2600 Park Tower Drive
Suite 100
Vienna, Virginia 22180

Dear Mr. Ramo:

NIAGARA FALLS AIR RESERVE STATION DRAFT ENVIRONMENTAL ASSESSMENT

This is in response to a memorandum dated May 3, 2011 from Mr. Pat Battista, which requested this Department's review of the Draft Environmental Assessment document for proposed construction projects at the Air Reserve Station. We performed a general environmental screening of the location and have reviewed the draft document. It appears that the proposed work will not take place within areas that would cause great concern from this Department. However, you may wish to contact the following Divisions within our agency for guidance regarding the following issues:

1. We suggest you contact Mr. Robert Locey of our Division of Water at (716) 851-7070, to determine whether or not any of the new buildings will require Sanitary Sewer Extensions. If sewer line extensions are necessary, Mr. Rink will be able to help you coordinate with the Niagara County Health Department (NCHD) to satisfy local requirements. NCHD acts as this Department's agent for Sewer Extension Approval.
2. Project activities that will involve land disturbance of 1 acre or more will require a State Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001). This General Permit requires the project sponsor, owner or operator to control stormwater runoff according to a Stormwater Pollution Prevention Plan (SWPPP), which is to be prepared prior to filing a Notice of Intent (NOI) and prior to commencement of the project. More information on General Permit GP-0-10-001, as well as the NOI form, is available on the Department's website at www.dec.ny.gov/chemical/43133.html.
3. Please be aware that if asbestos exists in any buildings to be demolished, the disposal of friable (readily crumbled and brittle) asbestos is regulated by this Department under 6 NYCRR Part 360-2.17(p). For more information on the disposal of friable asbestos, please contact Mr. Mark Hans of our Division of Materials Management at (716) 851-7220.

Mr. Bruce Ramo
June 3, 2011
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4. The presence of elemental mercury and/or lead in any buildings being demolished is also a concern of the Department. Mercury is found in many different common items such as fluorescent lights and electrical switches, while lead is mainly found in older paints (pre-1980). For guidance on the proper handling and disposal of mercury and/or lead, please contact our Division of Environmental Remediation at (716) 851-7220 or visit the Department's Mercury webpage at <http://www.dec.ny.gov/chemical/285.html>.

If you have questions regarding this letter, please contact Ms. Denise Matthews, of my staff, at (716) 851-7165. Thank you.

Sincerely,



David S. Denk
Regional Permit Administrator

DSD:dcn

cc: Mr. Mark Hans, NYSDEC Division of Materials Management (via e-mail)
Mr. Robert Locey, NYSDEC Division of Water (via e-mail)
Mr. Pat Battista, 914 MSG/CEV, Niagara Falls Air Reserve Station



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& ASSOCIATES**

285 Delaware Avenue, Suite 500, Buffalo, New York 14202
Telephone: 716-856-2142 Facsimile: 716-856-2160
www.CRAworld.com

June 22, 2011

Reference No. 630166

Mr. Bruce Ramo
HDR, Inc.
2600 Park Tower Drive
Suite 100
Vienna, Virginia 22180

Dear Mr. Ramo:

Re: Environmental Assessment Comments
Niagara Falls Air Reserve Station Construction Projects

On behalf of the Town of Niagara, CRA Infrastructure and Engineering, Inc. (CRA) has completed a review of the Draft Environmental Assessment (EA), dated May 2011 in connection with various construction projects to be sited at the Niagara Falls Air Reserve Station (ARS).

Based upon our review of the EA and our understanding of the flooding that occurs within the Cayuga Creek basin, CRA disagrees with the determination that development at the ARS will have minimal impact to downstream drainage conditions. The EA concludes that a minimal impact will occur on the basis of meeting New York State Department of Environmental Conservation (NYSDEC) standards for regulating peak flows to a pre-developed condition, while citing a U.S. Army Corps of Engineers (ACOE) 1999 study that states that the air base has not appreciably contributed to the peak flow of Cayuga Creek. However, the 1999 ACOE study is incomplete and inapplicable. The March 2002 ACOE Reconnaissance Report completed for Cayuga Creek, which is a follow-up to the referenced 1999 report, confirms the severity of flooding and concludes that the channel in question has the capacity to handle a minimal 2-year storm event. The addition of runoff without proper stormwater management will only add to the current problem.

Flooding in this area occurs frequently and will not simply improve by designing to meet NYSDEC standards for water quantity control (as noted on attached photographs). The observed flooding within the Town is a direct result of an increase in stormwater runoff volume from improvements at the air base which appear to have been completed in isolation and without consideration to planning on a regional watershed basis.

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& ASSOCIATES**

June 22, 2011

2

Reference No. 630166

Under current conditions, Cayuga Creek cannot handle existing flows, let alone additional flow volume or peak flows, without substantial mitigation and appropriate planning. In the past 15 years, the Town of Niagara has experienced severe flooding of residential areas downstream of the air base. Many homes and neighborhoods have had repeated flood damage and required emergency evacuation during high intensity storm events. One of the most significant events in January 1998 caused the evacuation of 574 homes. Yet, no land use changes or new development has occurred in the project area within the Town during that time. It is clear that the cumulative effect of air base projects that have added significant impervious areas without appropriate detention/retention has had a significant adverse impact to downstream conditions.

Furthermore, the cumulative impact from projects at the Niagara Falls International Airport (NFIA) will exacerbate existing conditions, increasing the potential for greater downstream impacts.

The Town of Niagara requires the inclusion of mitigation measures based on a comprehensive study that evaluates the cumulative impact of development activities at the ARS and NFIA. Furthermore, the Town recommends that a meeting be held with the Town, ARS and NFIA to ensure all relevant issues are included in this study.

Yours truly,

CRA INFRASTRUCTURE
& ENGINEERING, INC.

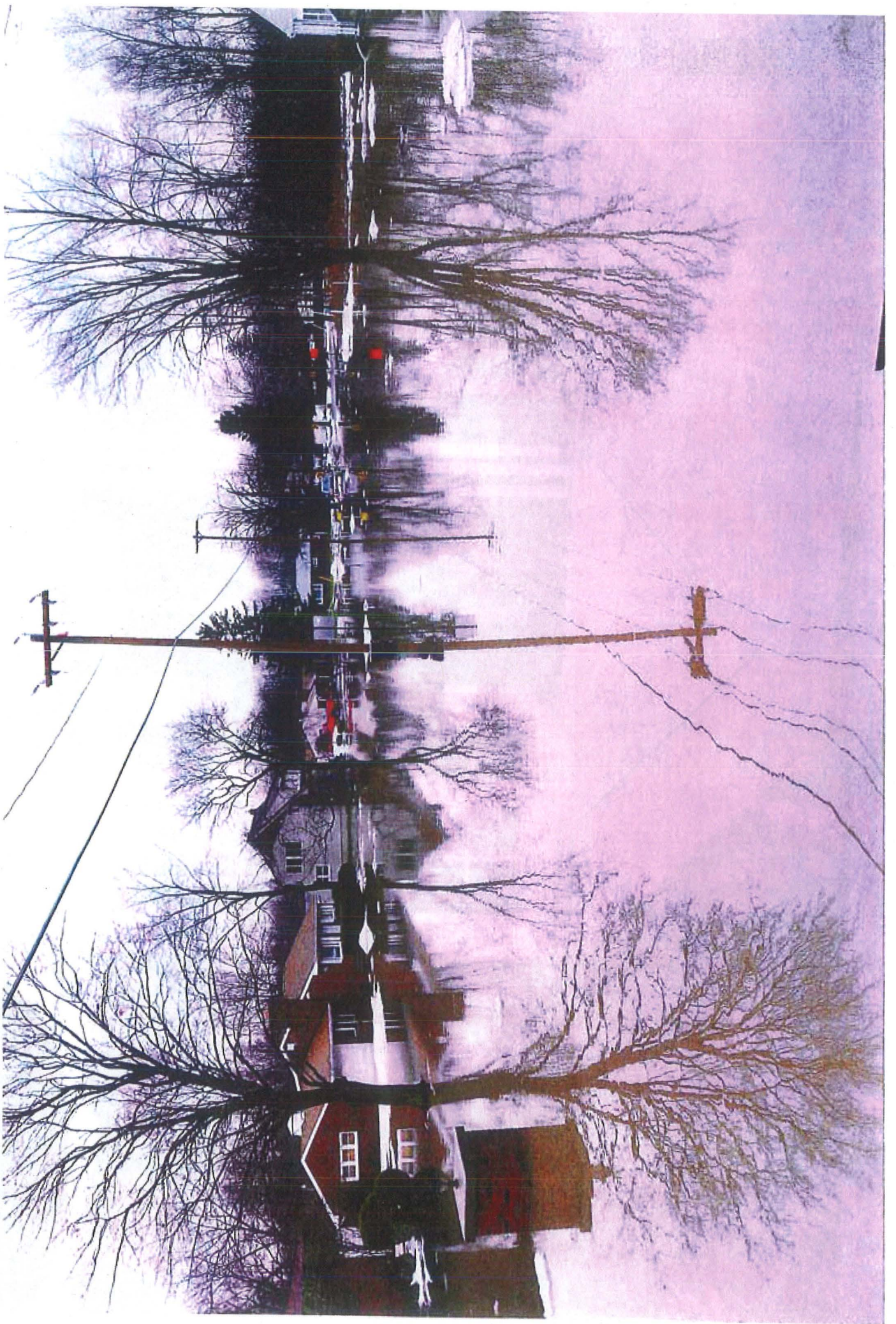
Robert P. Lannon Jr., P.E.
Vice President

RPL/DMB/jac/630166/General-NFARS-1

Encl: Photographs

cc: Congresswoman Louise Slaughter, w/enclosures
Senator Charles Schumer, w/enclosures
Supervisor Steven C. Richards, Town of Niagara, w/enclosures













DEPARTMENT OF THE AIR FORCE

AIR FORCE RESERVE COMMAND

14 July 2011

914 MSG/CC
2720 Kirkbridge Drive
Niagara Falls ARS NY 14304-5001

CRA Infrastructure & Engineering, Inc.
Robert Lannon Jr., P.E., Vice President
285 Delaware Avenue, Suite 500
Buffalo, NY 14202

Dear Mr. Lannon:

Thank you for comments on the draft environmental assessment (EA) for the proposed construction projects at Niagara Falls Air Reserve Station (ARS) dated June 22, 2011.

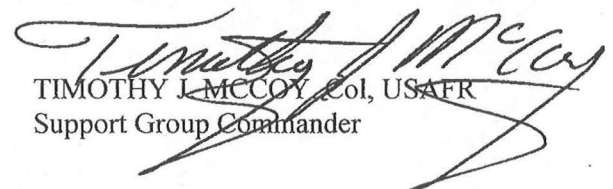
While we understand your concern about flooding in residential areas, Niagara Falls (ARS) has instituted New York State Department of Environmental (NYSDEC) standards for stormwater quantity and quality control for new construction. In addition to the NYSDEC regulations, Niagara Falls (ARS) implements Energy Independence and Security Act (EISA) federal stormwater regulations for projects over 5,000 square feet (0.11 acres). These regulations require the base to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.

Therefore, the addition of the projects listed in the draft (EA) should have no effect on the flow of Cayuga Creek during storm events.

We at the Niagara Falls ARS would be glad to meet with you, the Town of Niagara, and the Niagara Falls International Airport to discuss this flooding issue as stated in your comment letter.

Please contact Mr. Pat Battista of the 914 MSG/CE at (716) 236-3103 if you have any questions or need further information.

Sincerely


TIMOTHY J. MCCOY, Col, USAFR
Support Group Commander

cc:
Congresswoman Louise Slaughter
Senator Charles Schumer
Supervisor Steven C. Richards, Town of Niagara
Robert Stone, Niagara Falls International Airport



New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

www.nysparks.com

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

June 16, 2011

Pat Battista
Department of the Air Force
2405 Franklin Drive
Niagara Falls, New York 14304

Re: AIR FORCE
Proposed Construction
Niagara Falls Air Reserve Station
(ARS)/NIAGARA FALLS, Niagara County
11PR03771

Dear Pat Battista:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, it is the SHPO's opinion that your project will have No Effect upon cultural resources in or eligible for inclusion in the National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont
Acting Deputy Commissioner for Historic Preservation



June 20, 2011

HDR
Mr. Bruce Ramo
2600 Park Tower Drive – Suite 100
Vienna, VA 22180

Re: Environmental Assessment – Niagara Falls Air Reserve Station – Proposed
Construction Projects

Dear Mr. Ramo:


As requested in your letter dated May 3, 2011 and received in our offices on May 24, 2011 comments regarding the Environmental Assessment for Proposed Construction Projects at the Niagara Falls Air Reserve Station.

Our comments are as follows:

- Please coordinate any airspace reviews (7460's) with the NFTA on each of the projects.
- Please supply the NFTA with some basic construction drawings or layouts of the proposed projects prior to project commencement.

If you have any questions, or concerns, please don't hesitate to call me at (716) 855-7408.
Thank you.

Sincerely,


Christine D'Aloise
Acting Director, Health Safety Environmental Quality

cc. M. Clark (NFTA)
File

The Draft EA and FONSI were made available to the general public for a 30-day review period. The Notice of Availability (NOA) was published on 24 May 2011 in the *Niagara Gazette*, as shown below. The Draft EA and FONSI were also made available to the general public at the Niagara Falls Public Library. No comments from the general public were received.

PUBLIC NOTICE

Notice of Availability Draft Environmental Assessment Addressing Construction Projects at Niagara Falls Air Reserve Station, New York

Niagara Falls Air Reserve Station, New York - A Draft Environmental Assessment (EA) for ten construction projects at Niagara Falls Air Reserve Station is being prepared. The 914 AW proposes to construct and operate new facilities required to support the continuing mission at Niagara Falls ARS. This includes new construction to comply with the 2005 Base Closure and Realignment Commission requirement to establish an Air Reserve Component (ARC) association between the 914 Airlift Wing (AW) and 107 AW, and new construction to complete the Five-Year Defense Plan (FYDP). Base Closure and Realignment Commission projects include construction of Joint AFRC/Air National Guard (ANG) Wing Headquarters, C-130 Flightline Operations Facility, and Joint Medical Facility. FYDP projects include a Flight Simulator Facility, Visitor, Ås Quarters Phase III and Visitor, Ås Quarters Phase IV, Visitor, Ås Quarters Parking Area, Munitions Storage Igloo and Munitions Maintenance and Inspection (M&I) Facility, Explosive Ordnance Disposal (EOD) Range, and Fill-in Ramp South of Hangar 707. All new buildings constructed as part of the Proposed Action would be U.S. Green Building Council Leadership in Energy and Environmental Design- (LEED) certified, and would comply with anti-terrorism/force protection requirements.

The 914 AW is proposing to issue a Finding of No Significant Impact (FONSI) based on the Draft EA. The analysis considered in detail the potential effects of the Proposed Action and the No Action Alternative on the following resource areas: noise, land use, air quality, safety, water and soil resources, biological resources, socioeconomics and environmental justice, infrastructure, and hazardous materials and waste. The results of the Draft EA indicate that the Proposed Action would not have a significant impact on the environment, indicating that a FONSI would be appropriate. An Environmental Impact Statement is not considered necessary to implement the Proposed Action.

Copies of the Draft EA describing the Proposed Action in detail and presenting the analysis, as well as the Draft FONSI, are available for review at the Niagara Falls Public Library, Earl W. Brydges Building, 1425 Main Street, Niagara Falls, NY 14305. Public comments on the Draft EA will be accepted until June 23, 2011.

To view the FONSI and EA, please visit the Web site:
<https://newafpims.afnews.af.mil/shared/media/document/AFD-110518-035.PDF>.

Written comments and inquiries on the Draft EA and Draft FONSI should be directed to the 914 AW Office of Public Affairs, 2720 Kirkbridge Drive, Niagara Falls ARS, NY, 14304-5001 or call (716) 236-2000.

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APPENDIX D

CALCULATIONS SUPPORTING THE NOISE IMPACT ANALYSIS

Appendix D

Noise Analysis

BNOISE2 Computerized Noise Modeling Program Results for Operation of the Explosive Ordnance Disposal (EOD) Range (Project 9).

Assumptions for Day-Night Average Sound Level (DNL) Analysis:

- DNL noise contours in C-weighted decibels (dBC) were developed in the BNOISE2 computer modeling program and were used as the primary noise descriptor for this EA.
- The frequency and types of detonation activities inputted into BNOISE2 were provided by Sargent Keith Hartloff (914 Air Wing EOD Flight) in February 2011.
- An “average busy month” would be 5 detonations per day for 5 days, for a total of 25 detonations per month. Two of the five training days per month would be during the Unit Training Assembly (UTA) weekend.
- No detonations would occur during nighttime hours (10:00 p.m. to 7:00 a.m.).
- Eighty percent of the detonations would be Class 1.1 explosives (e.g., 2.5 pounds of C-4). The remaining 20 percent would be Class 1.4 explosives (e.g., shotgun shells). The shotgun shells are loaded into a device similar to a shotgun barrel, which fires and collects the contents; the shells would not explode. Therefore, the DNL noise modeling was conducted using 20 detonations of C-4 per month, and 5 disposals of shotgun shells per month.
- The closest available charge of C-4 available in the BNOISE2 program is 2.2 pounds.
- The shotgun shells were assumed to be 12-gauge. A 12-gauge shell is 89 millimeters (mm). Therefore, the “90-mm gun” firing noise in BNOISE2 was used.
- The “Day Base” weather scenario was selected in BNOISE2.

BNOISE2 DNL noise modeling output is as follows:

NFARS EOD Range

CASE_BCALC_v1.x

begin_description

```
#Date/Time Created: 14 Feb 2011 11:30
#Case File Name: C:\BNOISE2\Cases\NFARS EOD Range.dat
#BNOISE2 v1.3.2003-07-03

#
# Receiver Grid Selection = NFARS EOD RANGE
# Metric Selection = DNL (104 x 24h), C WEIGHTING
# Activity Selection = NFARS EOD RANGE
# Include Terrain: False
# Include Land-Water: False
#

# Installation Name: NIAGARA FALLS AIR RESERVE STATION
# Service: US AIR FORCE
# State: NY
# Country: USA
# Author: ELAINE DUBIN
# Date Created: 11 Feb 2011
# Date Last Modified: 11 Feb 2011
```

end_description

begin_bcalcommands

```
# This section is for diagnostic purposes only
Draw Firing Areas: .true.
Draw Target Areas: .true.
Draw Trajectories: .true.
Draw Registration Marks: .true.
Write Annotations: .true.
Calculate Contour Grid: .true.
```

end_bcalcommands

begin_sound_propagation_types

```
Propagation Directory Name: C:\BNOISE2\support\

Propagation Type: BN3.2 DAY BASE
Downwind Table: no loss
Downwind Corrections: dbase.st
Upwind Table: no loss
Upwind Corrections: dbase.st
# Date Created: 7 Jun 1999
# Date Last Modified: 7 Jun 1999
```

end_sound_propagation_types

begin_propagation_occurrence_by_azimuth

```
Propagation Type: BN3.2 DAY BASE
Propagation Azimuth (deg): 0
Daytime Occurrence (pct): 100
Nighttime Occurrence (pct): 100
# Date Created: 16 Jun 1999
```

Page 1

```

                                NFARS EOD Range
# Date Last Modified: 16 Jun 1999

end_propagation_occurrence_by_azimuth

begin_receivergrid
Receiver Grid Name: NFARS EOD RANGE
UTM Zone: 17
SW Corner Easting: 666938.00
SW Corner Northing: 4777676.00
EW Overall Size: 5000
NS Overall Size: 5000
Mesh Spacing: 50
# Installation Name: NIAGARA FALLS AIR RESERVE STATION
# Service: US AIR FORCE
# State: NY
# Country: USA
# Author: ELAINE DUBIN
# Date Created: 10 Feb 2011
# Date Last Modified: 14 Feb 2011

end_receivergrid

begin_maps
#Land-Water XYW Map File Name: None
#Terrain XYZ Map File Name: None

end_maps

begin_firingareas
Firing Area Name: NFARS EOD RANGE_POINT_POINT
UTM Zone: 17
East1: 668071.00
North1: 4778239.00
Percent1: 100.00
Elevation: 0.00
# Easting: 668071.00
# Northing: 4778239.00
# EastWest Size: 0.00
# NorthSouth Size: 0.00
# Azimuth: 0.00
# Installation Name: NIAGARA FALLS AIR RESERVE STATION
# Service: US AIR FORCE
# State: NY
# Country: USA
# Author: ELAINE DUBIN
# Date Created: 11 Feb 2011
# Date Last Modified: 14 Feb 2011

end_firingareas

begin_targetareas
Target Area Name: NFARS EOD RANGE SHOTGUN TARGET_POINT_POINT
UTM Zone: 17
East1: 668072.00

```

NFARS EOD Range

North1: 4778240.00
 Percent1: 100.00
 Elevation: 0.00
 # Easting: 668072.00
 # Northing: 4778240.00
 # EastWest Size: 0.00
 # NorthSouth Size: 0.00
 # Azimuth: 0.00
 # Installation Name: NIAGARA FALLS AIR RESERVE STATION
 # Service: US AIR FORCE
 # State: NY
 # Country: USA
 # Author: ELAINE DUBIN
 # Date Created: 11 Feb 2011
 # Date Last Modified: 14 Feb 2011

end_targetareas

begin_equivalentyields

Equivalent Yield Name: COMPOSITION C-4
 Pressure Equivalent TNT Multiple: 1.3700
 Impulse Equivalent TNT Multiple: 1.1900
 # Description: M.M. Swisdak NSWC TR-75-116; ANSI S2.20-1983
 # Date Created: 1 Jan 1998
 # Date Last Modified: 1 Jan 1998

end_equivalentyields

begin_cselacousticefficiencies

CSEL Acoustic Efficiency Name: 90-MM GUN
 Acoustic Efficiency Agun: 156.2000
 Acoustic Efficiency Bgun: 15.0000
 # Description:
 # Date Created: 1 Jan 1998
 # Date Last Modified: 1 Jan 1998

end_cselacousticefficiencies

begin_directivityspectra

end_directivityspectra

begin_cseldirectivities

CSEL Directivity Name: 90-MM GUN
 Directivity Adir: -3.0700
 Directivity Bdir: -5.3900
 Directivity Cdir: 2.5900
 # Description :
 # Date Created: 1 Jan 1998
 # Date Last Modified: 1 Jan 1998

end_cseldirectivities

begin_noisesources

NFARS EOD Range

Noise Source Code: EC421
 Weapon Class: EXPLOSIVE
 # Weapon Type: EXPLOSIVE
 # Weapon: COMPOSITION C-4
 # Charge Increment: 1.0 KG (2.2 LBS)
 Explosive Charge Weight (kg): 1.0000
 # Charge Increment Description:
 Equivalent Yield: COMPOSITION C-4

Noise Source Code: G9001
 Weapon Class: GUN
 # Weapon Type: GUN
 # Weapon: 90-MM GUN
 Trajectory: PARABOLIC
 # Propelling Charge: ZONE 1
 Initial Velocity (m/s): 823.00
 Propelling Charge Weight (kg): 3.3158
 # Charge Description:
 CSEL Acoustic Efficiency: 90-MM GUN
 CSEL Directivity: 90-MM GUN
 # Noise Source Description:
 # Date Created: 1 Jan 1998
 # Date Last Modified: 1 Jan 1998

Noise Source Code: P9090
 Weapon Class: PROJECTILE
 # Weapon Type: PROJECTILE
 # Weapon: 90-MM GUN
 # Projectile: HE
 Projectile Diameter (mm): 90.0000
 Projectile Length (mm): 417.0000
 Explosive Charge Weight (kg): 0.8600
 # Projectile Description:
 Equivalent Yield: COMPOSITION C-4
 # Noise Source Description:
 # Date Created: 1 Jan 1998
 # Date Last Modified: 1 Jan 1998

end_noisesources

begin_activitydetails

Detail Record Number: 1
 Firing Area: NFARS EOD RANGE_POINT_POINT
 Firing Noise Source: EC421
 Firing Height: 0.00
 Target Area:
 # This Activity Detail uses no Target Area
 Number of Day Shots: 2.30769229
 Number of Night Shots: 0.00000000
 # Activity Detail Date:
 # Activity Detail Description: 20 detonations per month (240 per year/104
 operating days per year=2.30 per day
 # Date Created: 11 Feb 2011
 # Date Last Modified: 14 Feb 2011

Detail Record Number: 2
 Firing Area: NFARS EOD RANGE_POINT_POINT
 Firing Noise Source: G9001
 Firing Height: 0.00
 Target Area: NFARS EOD RANGE SHOTGUN TARGET_POINT_POINT
 Target Noise Source: P9090

Page 4

NFARS EOD Range

Target Height: 0.00
Number of Day Shots: 0.57692301
Number of Night Shots: 0.00000000
Bow Shock: False
Trajectory Path: Not Applicable
Activity Detail Date:
Activity Detail Description: 5 firings per month (60 per year/104 operating days
per year = 0.57 per day)
Date Created: 11 Feb 2011
Date Last Modified: 14 Feb 2011

end_activitydetails

begin_frequencyweighting

Frequency Weighting Name: C WEIGHTING

Band 0: -45.30
Band 1: -42.20
Band 2: -39.10
Band 3: -36.00
Band 4: -32.90
Band 5: -29.80
Band 6: -26.70
Band 7: -23.60
Band 8: -20.50
Band 9: -17.40
Band 10: -14.30
Band 11: -11.20
Band 12: -8.50
Band 13: -6.20
Band 14: -4.40
Band 15: -3.00
Band 16: -2.00
Band 17: -1.30
Band 18: -0.80
Band 19: -0.50
Band 20: -0.30
Band 21: -0.20
Band 22: -0.10
Band 23: 0.00
Band 24: 0.00
Band 25: 0.00
Band 26: 0.00
Band 27: 0.00
Band 28: 0.00
Band 29: 0.00
Band 30: 0.00
Band 31: 0.00
Band 32: -0.10
Band 33: -0.20
Band 34: -0.30
Band 35: -0.50
Band 36: -0.80
Band 37: -1.30
Band 38: -2.00
Band 39: -3.00
Band 40: -4.40
Band 41: -6.20
Band 42: -8.50
Band 43: -11.20

end_frequencyweighting

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NFARS EOD Range

begin_metrics

Metric Name: DNL (104 x 24h)
Frequency Weighting: C WEIGHTING
Contour Metric: DNL
Silence Threshold: 65.00
Assessment Period (h): 2496
Date Created: 24 May 2000
Date Last Modified: 24 May 2000

end_metrics

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Peak sound pressure levels (PK15[met]) Analysis Assumptions:

- To supplement the DNL analysis, single-event noise levels in PK15(met) unweighted decibels (dBP) were estimated using the BNOISE2 OneShot function.
- The single event level should be the loudest level that occurs at each receiver location. Therefore, PK15(met) noise levels were estimated using the loudest explosive proposed for use at the EOD Range (i.e., 2.5 pounds of C-4 explosives). The closest available charge of C-4 available in the BNOISE2 program is 2.2 pounds.
- Note: The BNOISE2 OneShot function models distances at 20-meter (65-foot) increments. All distances were rounded down to the closest 20-meter increment to model a worst-case scenario.
- Note: 150 dBP is the highest noise level the OneShot function can model.
- The unweighted peak level mu+1 sigma value (15.87 percent exceeding) was selected for the following distances:

The buildings directly northeast (Buildings 610 and 701) and southeast (Buildings 727, 731, and 731a) of the proposed range are used for storage and utilities, respectively; therefore, Building 700 (Aerospace Ground Equipment Shop) is the closest structure to the proposed range that would be regularly accessed by Niagara Falls ARS personnel.

Distance #1: Niagara Falls ARS personnel accessing Building 700 (Aerospace Ground Equipment Shop), approximately 440 feet (134 meters) northwest (343°) of the proposed range. Used 120 meters per note above.

OneShot Results				
A-WEIGHTED EXPOSURE LEVEL, ASEL (dB)	ANSI 12.9/4 ADJUSTED LEVEL, ASE (dB)	C-WEIGHTED EXPOSURE LEVEL, CSEL (dB)	UNWEIGHTED PEAK LEVEL, PK (dB)	PERCENT EXCEEDING (pct)
131.0	150.0	140.5	150.0	0.13 (mu+3 sigma)
127.5	150.0	137.5	150.0	2.28 (mu+2 sigma)
124.0	150.0	134.0	150.0	15.87 (mu+1 sigma)
120.5	149.5	130.5	150.0	50.00 (mu+0 sigma)
117.5	149.5	127.5	150.0	84.13 (mu-1 sigma)
114.0	145.0	124.0	150.0	97.72 (mu-2 sigma)
122.3	149.8	132.1	<--ENERGY MEAN	
1.00	1.00	1.00	<--N NOISES	
1.00	1.00	1.00	<--N DETECT	

Distance #2: People at the installation boundary, approximately 700 feet (213 meters) east (90°) of the EOD containment area. Used 220 meters per note above.

OneShot Results				
A-WEIGHTED EXPOSURE LEVEL, ASEL (dB)	ANSI 12.9/4 ADJUSTED LEVEL, ASE (dB)	C-WEIGHTED EXPOSURE LEVEL, CSEL (dB)	UNWEIGHTED PEAK LEVEL, PK (dB)	PERCENT EXCEEDING (pct)
130.5	150.0	140.5	150.0	0.13 (mu+3 sigma)
125.0	150.0	135.0	150.0	2.28 (mu+2 sigma)
119.5	150.0	130.0	150.0	15.87 (mu+1 sigma)
114.5	146.5	124.5	150.0	50.00 (mu+0 sigma)
109.0	135.5	119.0	148.5	84.13 (mu-1 sigma)
103.5	125.0	114.0	143.0	97.72 (mu-2 sigma)
117.8	147.2	128.0	<--ENERGY MEAN	
1.00	1.00	1.00	<--N NOISES	
1.00	1.00	1.00	<--N DETECT	

Distance #3: People accessing the residences on the eastern side of Walmore Road (the closest off-installation noise-sensitive receptor) approximately 2,300 feet (701 meters) east (90°) of the EOD Range. Used 700 meters per note above.

OneShot Results				
A-WEIGHTED EXPOSURE LEVEL, ASEL (dB)	ANSI 12.9/4 ADJUSTED LEVEL, ASE (dB)	C-WEIGHTED EXPOSURE LEVEL, CSEL (dB)	UNWEIGHTED PEAK LEVEL, PK (dB)	PERCENT EXCEEDING (pct)
120.0	150.0	131.5	150.0	0.13 (mu+3 sigma)
113.0	146.5	124.5	150.0	2.28 (mu+2 sigma)
106.5	133.0	118.0	145.5	15.87 (mu+1 sigma)
99.5	119.5	111.0	138.5	50.00 (mu+0 sigma)
93.0	106.0	104.5	132.0	84.13 (mu-1 sigma)
86.0	92.0	97.5	125.0	97.72 (mu-2 sigma)
105.1	135.4	116.6	<--ENERGY MEAN	
1.00	1.00	1.00	<--N NOISES	
1.00	1.00	1.00	<--N DETECT	

Distance #4: People accessing the residential community 1 mile (1,688 meters) southeast (120°) of the EOD Range along Niagara Road. Used 1,680 meters per note above.

OneShot Results					
A-WEIGHTED EXPOSURE LEVEL, ASEL (dB)	ANSI 12.9/4 ADJUSTED LEVEL, ASE (dB)	C-WEIGHTED EXPOSURE LEVEL, CSEL (dB)	UNWEIGHTED PEAK LEVEL, PK (dB)	PERCENT EXCEEDING (pct)	
-----	-----	-----	-----	-----	
104.0	132.0	117.5	143.5	0.13	(mu+3 sigma)
98.0	120.5	111.5	138.0	2.28	(mu+2 sigma)
92.5	109.0	106.0	132.0	15.87	(mu+1 sigma)
86.5	97.5	100.0	126.5	50.00	(mu+0 sigma)
81.0	86.0	94.5	120.5	84.13	(mu-1 sigma)
75.5	75.0	89.0	115.0	97.72	(mu-2 sigma)
-----	-----	-----	-----	-----	
90.8	112.9	104.2	<--ENERGY MEAN		
1.00	1.00	1.00	<--N NOISES		
1.00	1.00	1.00	<--N DETECT		

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APPENDIX E

GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY AND CALCULATIONS TO SUPPORT THE AIR EMISSIONS ANALYSIS

GENERAL CONFORMITY -- RECORD OF NON-APPLICABILITY

Project/Action Name: *Environmental Assessment Addressing Construction Projects at Niagara Falls Air Reserve Station, New York*

Project/Action Point of Contact: Gerry Hromowyk
914 MSG/CEC
2720 Kirkbridge Drive
Niagara Falls ARS, NY 14304-5063

Begin Date: 2012

End Date: 2016

General Conformity under the Clean Air Act, Section 176, has been evaluated for the projects analyzed in the Environmental Assessment (EA) referenced above according to the requirements of 40 CFR 93, Subpart B. The General Conformity Rule applies to Federal actions occurring in regions designated as being in nonattainment for the NAAQS or attainment areas subject to maintenance plans (maintenance areas). Threshold (*de minimis*) rates of emissions have been established for Federal actions with the potential to have significant air quality impacts. If a project/action in an area designated as nonattainment exceeds these *de minimis* levels, a general conformity analysis is required. Niagara County is designated as a basic ozone (8-hour) nonattainment area, thus the NO_x and VOC thresholds apply.

Total temporary construction emissions for the first year for this project/action have been estimated at:

NO_x: 11.99 tons; VOCs: 1.70 tons

Total temporary construction emissions for the first year are below the *de minimis* levels established in 40 CFR 93.153 (b) of:

NO_x: 100 tons; VOC: 50 tons

Therefore, a General Conformity Analysis of this project/action is not required because total temporary construction emissions are below *de minimis* levels.

Total operational emissions for the following years of this project/action have been estimated at:

NO_x: 238.3 pounds/year; VOCs: 14.7 pounds/year; CO: 104.8 pounds/year;
Pb: 0.046 pounds/year; SO₂: 1.50 pounds/year; PM₁₀: 47.33 pounds/year;
PM_{2.5}: 21.65 pounds/year

These emissions represent a minor percentage of the air emissions inventory locally in Niagara County and would represent a negligible percentage of the air emissions inventory regionally within the NFIAQCR.

Furthermore, the project/action is not considered regionally significant under 40 CFR 93.153 (i). Niagara County is in attainment for criteria pollutants PM₁₀, PM_{2.5}, CO, SO₂, and Pb, and therefore these pollutants are not subject to conformity review.

Supporting documentation and emissions estimated can be found in Section 4.3.2 and Appendix E of the EA.


ALLAN L. SWARTZMILLER, Colonel, USAFR
Commander

29 Apr 11
Date

Summary	Summarizes total emissions by calendar year for the Proposed Action
Combustion	Estimates emissions from non-road equipment exhaust.
Fugitive	Estimates particulate emissions from construction activities including earthmoving, vehicle traffic, and windblown dust.
Grading	Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions.
Construction Commuter	Estimates emissions for construction workers commuting to the site.
AQCR Tier Report	Summarizes total emissions for the Niagara Frontier Intrastate 162 AQCR Tier report for 2002, to be used to compare the Proposed Action to regional emissions.

Air Quality Emissions from the Proposed Action

	NO _x (ton)	VOC (ton)	CO (ton)	SO ₂ (ton)	PM ₁₀ (ton)	PM _{2.5} (ton)	CO ₂ (ton)
Construction Combustion	12.063	1.598	5.216	0.804	0.840	0.814	1,383.657
Construction Fugitive Dust	-	-	-	-	32.948	3.295	-
Construction Commuter	0.110	0.110	0.992	0.001	0.010	0.007	134.482
Stationary Sources	0.119	0.0074	0.052	0.00075	0.024	0.011	150.323
TOTAL	12.292	1.715	6.260	0.806	33.822	4.127	1,665.462

Note: Total PM_{10/2.5} fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO₂ emissions converted to metric tons = **1,510.574 metric tons**
 State of New York's CO₂ emissions = **190,890,067 metric tons (EIA 2010)**
 Percent of New York's CO₂ emissions = **0.001%**

Source: U.S. Department of Energy, Energy Information Administration (EIA). 2010. State Carbon Dioxide Emissions Summary for the State of New York. Available online: <http://www.eia.doe.gov/oiaf/1605/state/state_emissions.html>. Accessed 2 February 2011.

Since future year budgets were not readily available, actual 2002 air emissions inventories for the counties were used as an approximation of the regional inventory. Because the Proposed Action is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

Niagara Frontier Intrastate 162 AQCR

Year	Point and Area Sources Combined					
	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
2002	55,425	60,307	321,103	58,441	32,324	7,765

Source: USEPA-AirData NET Tier Report (<http://www.epa.gov/air/data/geosel.html>). Site visited on 29 September 2010.

Air Emissions from the Proposed Action Determination Significance (Significance Threshold = 10% of regional)

Point and Area Sources Combined					
NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
55,425	60,307	321,103	58,441	32,324	7,765
12.29	1.72	6.26	0.81	33.82	4.13
0.022%	0.0028%	0.0019%	0.0014%	0.105%	0.053%

Regional Emissions
Emissions
% of Regional

Combustion Emissions

Combustion Emissions of VOC, NO_x, SO₂, CO, PM_{2.5}, PM₁₀, and CO₂ due to Construction

General Construction Activities		Area Disturbed
1)	Construct Joint AFRC/ANG Wing HQ Facility	29,150 ft ²
2)	Construct C-130 Flightline Operations Facility	53,582 ft ²
	Demolish facilities in support of C-130 Flightline Operations Facility	
2)	Facility	28,036 ft ²
	Construct parking lot in support of C-130 Flightline Operations Facility	
2)	Facility	289,576 ft ²
3)	Construct Joint Medical Facility	25,353 ft ²
3)	Demolish facilities in support of Joint Medical Facility	3,519 ft ²
3)	Construct parking lot in support of Joint Medical Facility	25,236 ft ²
4)	Construct Visitor's Quarter parking lot	90,000 ft ²
4)	Demolish Existing Visitor's Quarter parking lot	16,800 ft ²
5)	Construct Flight Simulator Facility	11,312 ft ²
6)	Construct Future Visitor's Quarters, Phase III	188,368 ft ²
	Construct parking lot in support of Future Visitor's Quarters, Phase III	
6)	Phase III	50,000 ft ²
7)	Construct Future Visitor's Quarters, Phase IV	188,368 ft ²
	Demolish facilities in support of Future Visitor's Quarters, Phase IV	
7)	IV	5,418 ft ²
8)	Construct Munitions Storage Igloo 593, M&I Facility	8,718 ft ²
	Construct parking lot in support of Munitions Storage Igloo 593, M&I Facility	
8)	M&I Facility	20,600 ft ²
	Construct utilities in support of Munitions Storage Igloo 593, M&I Facility	
8)	Facility	600 ft ²
9)	Construct EOD Range	11,055 ft ²
10)	Construct Fill-in Ramp South of Hangar 707	213,284 ft ²

Total General Construction Area: 1,258,975 ft² (Projects 1-10)

28.9 acres

Total Demolition Area: 53,773 ft² (Projects 2, 3, 4, and 7)

1.2 acres

Total Pavement Area: 475,412 ft² (Projects 2, 3, 4, 6, and 8)

10.9 acres

Total Disturbed Area: 1,258,975 ft² (Projects 1-10)

28.9 acres

Construction Duration: 12 months

Annual Construction Activity: 240 days/yr

Assume 12 months, 4 weeks per month, 5 days per week.

Emission Factors Used for Construction Equipment

References: Guide to Air Quality Assessment, SMAQMD, 2004; and U.S. EPA NONROAD Emissions Model, Version 2005.0.0

Emission factors are taken from the NONROAD model and were provided to e²M by Larry Landman of the Air Quality and Modeling Center (Landman.Larry@epamail.epa.gov) on 12/14/07. Factors provided are for the weighted average US fleet for CY2007.

Assumptions regarding the type and number of equipment are from SMAQMD Table 3-1 unless otherwise noted.

Grading

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Bulldozer	1	13.60	95.742%	5.50	1.02	0.89	0.87	1456.90
Motor Grader	1	9.69	0.73	3.20	0.80	0.66	0.64	1141.65
Water Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Total per 10 acres of activity	3	41.64	2.58	15.71	0.83	2.55	2.47	4941.53

Paving

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Paver	1	3.83	0.37	2.06	0.28	0.35	0.34	401.93
Roller	1	4.82	0.44	2.51	0.37	0.43	0.42	536.07
Truck	2	36.71	1.79	14.01	3.27	1.99	1.93	4685.95
Total per 10 acres of activity	4	45.37	2.61	18.58	0.91	2.78	2.69	5623.96

Demolition

Equipment	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Loader	1	13.45	0.99	5.58	0.95	0.93	0.90	1360.10
Haul Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Total per 10 acres of activity	2	31.81	1.89	12.58	0.64	1.92	1.87	3703.07

Building Construction

Equipment ^d	No. Req ^d . ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Stationary								
Generator Set	1	2.38	0.32	1.18	0.15	0.23	0.22	213.06
Industrial Saw	1	2.62	0.32	1.97	0.20	0.32	0.31	291.92
Welder	1	1.12	0.38	1.50	0.08	0.23	0.22	112.39
Mobile (non-road)								
Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Forklift	1	5.34	0.56	3.33	0.40	0.55	0.54	572.24
Crane	1	9.57	0.66	2.39	0.65	0.50	0.49	931.93
Total per 10 acres of activity	6	39.40	3.13	17.38	3.12	2.83	2.74	4464.51

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Air Compressor	1	3.57	0.37	1.57	0.25	0.31	0.30	359.77
Total per 10 acres of activity	1	3.57	0.37	1.57	0.25	0.31	0.30	359.77

- The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.
- The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC. The NONROAD model contains emissions factors for total HC and for VOC. The factors used here are the VOC factors.
- The NONROAD emission factors assume that the average fuel burned in nonroad trucks is 1100 ppm sulfur. Trucks that would be used for the Proposed Actions will all be fueled by highway grade diesel fuel which cannot exceed 500 ppm sulfur. These estimates therefore over-estimate SO₂ emissions by more than a factor of two.
- Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	Project-Specific Emission Factors (lb/day)						
		NO _x	VOC	CO	SO ₂ **	PM ₁₀	PM _{2.5}	CO ₂
Grading Equipment	3	124.924	7.731	47.130	2.498	7.637	7.407	14824.579
Paving Equipment	1	45.367	2.606	18.578	0.907	2.776	2.693	5623.957
Demolition Equipment	1	31.808	1.886	12.584	0.636	1.923	1.865	3703.074
Building Construction	2	78.793	6.260	34.765	6.233	5.658	5.488	8929.023
Air Compressor for Architectural Coating	2	7.148	0.746	3.131	0.502	0.619	0.600	719.547
Architectural Coating**			69.065					

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project.

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Example: SMAQMD Emission Factor for Grading Equipment NO_x = (Total Grading NO_x per 10 acre)*(Equipment Multiplier)

Summary of Input Parameters

	Total Area (ft ²)	Total Area (acres)	Total Days	
Grading:	1,258,975	28.90	6	(from "Grading" worksheet)
Paving:	475,412	10.91	52	
Demolition:	53,773	1.23	62	
Building Construction:	718,135	16.49	240	
Architectural Coating	718,135	16.49	20	(per SMAQMD "Air Quality of Thresholds of Significance", 1994)

NOTE: The 'Total Days' estimate for paving is calculated by dividing the total number of acres by 0.21 acres/day, which is a factor derived from the 2005 MEANS Heavy Construction Cost Data, 19th Edition, for 'Asphaltic Concrete Pavement, Lots and Driveways - 6" stone base', which provides an estimate of square feet paved per day. There is also an estimate for 'Plain Cement Concrete Pavement', however the estimate for asphalt is used because it is more conservative. The 'Total Days' estimate for demolition is calculated by dividing the total number of acres by 0.02 acres/day, which is a factor also derived from the 2005 MEANS reference. This is calculated by averaging the demolition estimates from 'Building Demolition - Small Buildings, Concrete', assuming a height of 30 feet for a two-story building; from 'Building Footings and Foundations Demolition - 6" Thick, Plain Concrete'; and from 'Demolish, Remove Pavement and Curb - Concrete to 6" thick, rod reinforced'. Paving is double-weighted since projects typically involve more paving demolition. The 'Total Days' estimate for building construction is assumed to be 230 days, unless project-specific data is known.

Total Project Emissions by Activity (lbs)

	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Grading Equipment	749.54	46.39	282.78	14.99	45.82	44.44	88,947
Paving	2,359.10	135.50	966.08	47.18	144.36	140.03	292,446
Demolition	1,963.26	116.38	776.71	39.27	118.70	115.14	228,564
Building Construction	18,910.23	1,502.31	8,343.51	1,495.85	1,357.94	1,317.20	2,142,966
Architectural Coatings	142.96	1,396.24	62.62	10.05	12.37	12.00	14,391
Total Emissions (lbs):	24,125.09	3,196.81	10,431.69	1,607.33	1,679.19	1,628.82	2,767,314

Results: Total Project Annual Emission Rates

	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Total Project Emissions (lbs)	24,125.09	3,196.81	10,431.69	1,607.33	1,679.19	1,628.82	2,767,314
Total Project Emissions (tons)	12.06	1.60	5.22	0.80	0.84	0.81	1,383.66

Construction Fugitive Dust Emissions

Construction Fugitive Dust Emission Factors

	Emission Factor	Units	Source
General Construction Activities	0.19	ton PM ₁₀ /acre-month	MRI 1996; EPA 2001; EPA 2006
New Road Construction	0.42	ton PM ₁₀ /acre-month	MRI 1996; EPA 2001; EPA 2006

PM_{2.5} Emissions

PM _{2.5} Multiplier	0.10	(10% of PM ₁₀ emissions assumed to be PM _{2.5})	EPA 2001; EPA 2006
------------------------------	------	--	--------------------

Control Efficiency

0.50	(assume 50% control efficiency for PM ₁₀ and PM _{2.5} emissions)	EPA 2001; EPA 2006
------	--	--------------------

Project Assumptions

New Roadway Construction (0.42 ton PM₁₀/acre-month)

Duration of Construction Project	6 months
Area	- acres

General Construction Activities (0.19 ton PM₁₀/acre-month)

Duration of Construction Project	12 months
Area	28.9 acres

	Project Emissions (tons/year)			
	PM ₁₀ uncontrolled	PM ₁₀ controlled	PM _{2.5} uncontrolled	PM _{2.5} controlled
New Roadway Construction	0.00	0.00	0.00	0.00
General Construction Activities	65.90	32.95	6.59	3.29
Total	65.90	32.95	6.59	3.29

Construction Fugitive Dust Emission Factors

General Construction Activities Emission Factor

0.19 ton PM₁₀/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The area-based emission factor for construction activities is based on a study completed by the Midwest Research Institute (MRI) Improvement of Specific Emission Factors (BACM Project No. 1), March 29, 1996. The MRI study evaluated seven construction projects in Nevada and California (Las Vegas, Coachella Valley, South Coast Air Basin, and the San Joaquin Valley). The study determined an average emission factor of 0.11 ton PM₁₀/acre-month for sites without large-scale cut/fill operations. A worst-case emission factor of 0.42 ton PM₁₀/acre-month was calculated for sites with active large-scale earth moving operations. The monthly emission factors are based on 168 work-hours per month (MRI 1996). A subsequent MRI Report in 1999, Estimating Particulate Matter Emissions From Construction Operations, calculated the 0.19 ton PM₁₀/acre-month emission factor by applying 25% of the large-scale earthmoving emission factor (0.42 ton PM₁₀/acre-month) and 75% of the average emission factor (0.11 ton PM₁₀/acre-month). The 0.19 ton PM₁₀/acre-month emission factor is referenced by the EPA for non-residential construction activities in recent procedures documents for the National Emission Inventory (EPA 2001; EPA 2006). The 0.19 ton PM₁₀/acre-month emission factor represents a refinement of EPA's original AP-42 area-based total suspended particulate (TSP) emission factor in Section 13.2.3 Heavy Construction Operations. In addition to the EPA, this methodology is also supported by the South Coast Air Quality Management District as well as the Western Regional Air Partnership (WRAP) which is funded by the EPA and is administered jointly by the Western Governor's Association and the National Tribal Environmental Council. The emission factor is assumed to encompass a variety of non-residential construction activities including building construction (commercial, industrial, institutional, governmental), public works, and travel on unpaved roads. The EPA National Emission Inventory documentation assumes that the emission factors are uncontrolled and recommends a control efficiency of 50% for PM₁₀ and PM_{2.5} in PM nonattainment areas.

New Road Construction Emission Factor

0.42 ton PM₁₀/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The emission factor for new road construction is based on the worst-case conditions emission factor from the MRI 1996 study described above (0.42 tons PM₁₀/acre-month). It is assumed that road construction involves extensive earthmoving and heavy construction vehicle travel resulting in emissions that are higher than other general construction projects. The 0.42 ton PM₁₀/acre-month emission factor for road construction is referenced in recent procedures documents for the EPA National Emission Inventory (EPA 2001; EPA 2006).

PM_{2.5} Multiplier

0.10

PM_{2.5} emissions are estimated by applying a particle size multiplier of 0.10 to PM₁₀ emissions. This methodology is consistent with the procedures documents for the National Emission Inventory (EPA 2006).

Control Efficiency for PM₁₀ and PM_{2.5}

0.50

The EPA National Emission Inventory documentation recommends a control efficiency of 50% for PM₁₀ and PM_{2.5} in PM nonattainment areas (EPA 2006). Wetting controls will be applied during project construction.

References:

EPA 2001. *Procedures Document for National Emissions Inventory, Criteria Air Pollutants, 1985-1999*. EPA-454/R-01-006. Office of Air Quality Planning and Standards, United States Environmental Protection Agency. March 2001.

EPA 2006. *Documentation for the Final 2002 Nonpoint Sector (Feb 06 version) National Emission Inventory for Criteria and Hazardous Air Pollutants*. Prepared for: Emissions Inventory and Analysis Group (C339-02) Air Quality Assessment Division Office of Air Quality Planning and Standards, United States Environmental Protection Agency. July 2006.

MRI 1996. *Improvement of Specific Emission Factors (BACM Project No. 1)*. Midwest Research Institute (MRI). Prepared for the California South Coast Air Quality Management District, March 29, 1996.

Grading Schedule

Estimate of time required to grade a specified area.

Input Parameters

Construction area: 28.9 acres/yr (from Combustion Worksheet)
Qty Equipment: 9.0 (calculated based on 3 pieces of equipment for every 10 acres)

Assumptions.

Terrain is mostly flat.

An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.

200 hp bulldozers are used for site clearing.

300 hp bulldozers are used for stripping, excavation, and backfill.

Vibratory drum rollers are used for compacting.

Stripping, Excavation, Backfill and Compaction require an average of two passes each.

Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 19th Ed., R. S. Means, 2005.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr (project- specific)	Equip-days per year
2230 200 0550	Site Clearing	Dozer & rake, medium brush	8	acre/day	8	0.13	28.90	3.61
2230 500 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	28.90	14.13
2315 432 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	14.45	14.57
2315 120 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	14.45	5.98
2315 310 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	2,300	cu. yd/day	2.85	0.35	28.90	10.14
TOTAL								48.43

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 48.43
Qty Equipment: 9.00
Grading days/yr: 5.38

Construction Commuter Emissions

Emissions from construction workers commuting to the job site are estimated in this spreadsheet.

Emission Estimation Method: Emission factors from the South Coast Air Quality Management District (SCAQMD) EMFAC 2007 (v 2.3) Model (on-road) were used. These emission factors are available online at <http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html>.

Assumptions:

Passenger vehicle emission factors for scenario year 2010 are used

The average roundtrip commute for a construction worker = 40 miles
Number of construction days = 240 days
Number of construction workers (daily) = 25 people

Passenger Vehicle Emission Factors for Year 2010 (lbs/mile)

NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
0.00091814	0.00091399	0.00826276	0.00001077	0.00008698	0.00005478	1.09568235

Source: South Coast Air Quality Management District. EMFAC 2007 (ver 2.3) On-Road Emissions Factors. Last updated April 24, 2008. Available online: <<http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html>>. Accessed 27 May 2009.

Notes:

The SCAQMD 2007 reference lists emission factors for reactive organic gas (ROG). For purposes of this worksheet ROG = VOC

Construction Commuter Emissions

	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
lbs	220.354	219.357	1983.062	2.586	20.875	13.148	262963.764
tons	0.110	0.110	0.992	0.0013	0.0104	0.0066	131.482

Example Calculation: NO_x emissions (lbs) = 60 miles/day * NO_x emission factor (lb/mile) * number of construction days * number of workers

Stationary Source Emissions

External Combustion Sources

It is assumed that the Proposed Action requires the installation of boilers totaling up to 300,000 Btu/hr. This includes a 200,000 Btu boiler at the maintenance and inspection facility and an 100,000 Btu boiler at the munitions bunkers. Boiler sizes were provided by Mr. Gerry Hromowyk, 914 MSG/CEC.

Potential Run Time (hr)	Fuel Type
8,760	Natural Gas

Equates to 24 hrs per day, 365 days per year

Emission Factors :

Pollutant	CAS #	Natural Gas < 0.3 MMBtu/hr (lb/10 ⁶ scf)	Natural Gas ≥ 0.3 MMBtu/hr (lb/10 ⁶ scf)
PM		7.6	7.6
PM ₁₀		7.6	7.6
PM _{2.5}		7.6	7.6
Carbon Monoxide	630-08-0	40	84
NO _x		94	100
SO _x		0.6	0.6
Total Organic Compounds		11	11
Precursor VOCs		5.5	5.5
Lead	7439-92-1	0.0005	0.0005
Carbon Dioxide		120,000	120,000

20300101

Footnotes for External Combustion Emission Factors and Constants

Emission Factors from U.S. EPA AP 42, Chapter 1, External Combustion. Where necessary, emission factors expressed in units of lbs/MMBtu fuel oil were converted to lb/10³ gal using a conversion factor of 137,080 Btu/gal.

Heating value of natural gas = 1,050 Btu/scf

AP-42 Section 1.4-1 dated 7/98. High end of heat value used.

NG-Fired Boilers and Furnaces < 0.3 MMBtu/hr

		MMBtu Rating	Fuel Use (scf)	Actual Criteria Pollutant Emissions (lb/year)								
				PM	PM ₁₀	PM _{2.5}	CO	NOx	SOx	VOCs	Lead	CO ₂
Total		0.30	2,502,857	19.02	19.02	19.02	100.1	235.3	1.5	13.8	0.0013	300342.9

Explosive Ordinance Disposal

It is assumed the Proposed Action will require up to 5 detonations per month.

Each detonation is assumed to use 3.37 lbs of TNT

Emission Factors :

Pollutant	CAS #	(lb of Pollutant/lb of explosive)
PM		0.34
PM ₁₀		0.14
PM _{2.5}		0.013
Carbon Monoxide	630-08-0	0.023
NO _x		0.015
SO _x		0.0000015
VOC		0.0047
Lead	7439-92-1	0.00022
Carbon Dioxide		2

Footnotes for Emission Factors and Constants

Emission Factors from AP 42, Fifth Edition, Volume I, Chapter 15: Ordnance Detonation

Table 15.9.3-1 EMISSION FACTORS FOR THE USE OF DODIC M031, 1/2-POUND DEMOLITION BLOCK CHARGE

EOD Emission Estimates

Number of Detonations per year		lbs of TNT per detonation	Actual Criteria Pollutant Emissions (lb/year)								
			PM	PM ₁₀	PM _{2.5}	CO	NOx	SOx	VOCs	Lead	CO ₂
Total	60.00	3.37	68.75	28.31	2.63	4.7	3.0	0.00030	1.0	0.044	303.3

Total Stationary Source Emission Estimates

Actual Criteria Pollutant Emissions (lb/year)									
	PM	PM ₁₀	PM _{2.5}	CO	NO _x	SO _x	VOCs	Lead	CO ₂
Total	87.77	47.33	21.65	104.8	238.3	1.50	14.7	0.046	300646.2

Niagara Frontier Intrastate 162 AQCR

Row #	State	County	Area Source Emissions						Point Source Emissions					
			CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
1	NY	Erie Co	2183	8149	2508	2167	40737	678	260803	30595	20717	3458	10028	45339
2	NY	Niagara Co	4309	10496	1269	789	5164	201	53808	6185	7830	1351	2512	14089
		Total	6492	18645	3777	2956	45901	879	314611	36780	28547	4809	12540	59428

SOURCE:

<http://www.epa.gov/air/data/geosel.html>

USEPA - AirData NET Tier Report

*Net Air pollution sources (area and point) in tons per year (2002)

Site visited on 12 November 2010.

Niagara Frontier Intrastate 162 AQCR (40 CFR 81.24)

CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC
321,103	55,425	32,324	7,765	58,441	60,307

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LEED	Leadership in Energy and Environmental Design	PM _{2.5}	particulate matter equal to or less than 2.5 microns in diameter
LGLFRO	Lower Great Lakes Fishery Resources Office	POL	petroleum, oil, and lubricant
LID	low-impact development	ppm	parts per million
LTM	long-term monitoring	PSD	Prevention of Significant Deterioration
LUPZ	land use planning zone	PVC	polyvinyl chloride
M&I	Maintenance and Inspection	QD	quantity-distance
mg/m ³	milligrams per cubic meter	RCRA	Resource Conservation and Recovery Act
MSW	municipal solid waste	RI/FS	Remedial Investigation/Feasibility Study
NAAQS	National Ambient Air Quality Standards	SAAQS	State Ambient Air Quality Standards
NEPA	National Environmental Policy Act	SAP	satellite accumulation point
N.E.W.	net explosives weight	SARA	Superfund Amendments and Reauthorization Act
NFTA	Niagara Frontier Transportation Authority	SHPO	State Historic Preservation Office
NFIAQCR	Niagara Frontier Intrastate 162 Air Quality Control Region	SIP	State Implementation Plan
NFRAP	No Further Response Action Planned	SO _x	sulfur oxide
NO ₂	nitrogen dioxide	SPDES	State Pollutant Discharge Elimination System
NO _x	nitrogen oxide	SSPP	Strategic Sustainability Performance Plan
NOA	Notice of Availability	SWPPP	Storm Water Pollution Prevention Plan
NPDES	National Pollutant Discharge Elimination System	TCE	trichloroethylene
NRCS	National Resources Conservation Service	TMDL	Total Maximum Daily Load
NYANG	New York Air National Guard	TNT	2,4,6-Trinitrotoluene
NYCRR	New York Code of Rules and Regulations	TPH	total petroleum hydrocarbons
NYSDEC	New York State Department of Environmental Conservation	tpy	tons per year
O ₃	ozone	TRPH	Total Recoverable Petroleum Hydrocarbons
OG	Operations Group	U.S.C.	United States Code
OSHA	Occupational Safety and Health Administration	USACE	U.S. Army Corps of Engineers
PK15(met)	peak sound pressure level	USAF	U.S. Air Force
Pb	lead	USEPA	U.S. Environmental Protection Agency
PCB	polychlorinated biphenyl	USFWS	U.S. Fish and Wildlife Service
PM ₁₀	particulate matter equal to or less than 10 microns in diameter	UST	underground storage tank
		VOC	volatile organic compound

